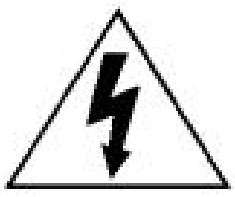
4CH MPEG-4 DVR

USER'S MANUAL

Please read instructions thoroughly before operation and retain it for future reference.
The image shown above may differ from the actual product appearance.

IMPORTANT SAFEGUARD



CAUTION

RISK OF ELECTRIC SHOCK

CAUTION:

To reduce the risk of electric shock, do not expose this apparatus to rain or moisture.

Only operate this apparatus from the type of power source indicated on the label.

The company shall not be liable for any damages arising out of any improper use,
even if we have been advised of the possibility of such damages.

Graphic Symbol Explanation

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CE Mark

This apparatus is manufactured to comply with the radio interference requirements.

Disclaimer

We reserve the right to revise or remove any content in this manual at any time. We do not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of this manual. The content of this manual is subject to change without notice.

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Version

Firmware Version: 1088-10-K2-04-AA-11; AP Version: 1057

For any changes of AP, please refer to your distributor. The content is this manual is subject to change without notice.

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1. OVERVIEW

1.1 Product Description

ITEMS	Model 1	Model 2	Model 3	Model 4	Model 5
Video Compression Format	Frame: MPEG 4 ; CIF: MPEG4	Frame: MPEG 4 ; CIF: MPEG4	Frame: MJPEG ; CIF: MPEG4	Frame: MJPEG ; CIF: MPEG4	Frame: MPEG 4 ; CIF: MPEG4
USB Interface	YES	YES	NO	YES	YES
Backup Device	Support USB 1.1/ 2.0 flash drive, CD writer and network remote backup	Support USB 1.1/ 2.0 flash drive and network remote backup	Network remote backup	Support USB 1.1/ 2.0 flash drive and network remote backup	Support USB 1.1/ 2.0 flash drive, CD writer and network remote backup
IR Transmitter	NO	NO	NO	YES	YES
Audio I/O	2 audio inputs, 1 audio output (Mono)	2 audio inputs, 1 audio output (Mono)	2 audio inputs, 1 audio output (Mono)	1 audio input, 1 audio output (Mono)	2 audio inputs, 1 audio output (Mono)
R.E.T.R. (Remote Event Trigger Recording)	NO	NO	NO	NO	YES
Dimension	375mm (W) × 61mm (H) × 281mm (D)	343mm (W) × 59mm (H) × 223mm (D)	343mm (W) × 59mm (H) × 223mm (D)	345mm (W) x 68.3mm (H) x 225mm (D)	375mm (W) × 61mm (H) × 281mm (D)

1.2 Features

MPEG4 DVR Technology

- Compression format providing crystal clear images with real time performance

Multiplex Operation

- Allow live display, record, playback, backup, and network operations at the same time

Free Upgrade to Advanced Functions

- Allow you to upgrade DVR functions without any charges

Long-Recording Hours

- Model 1 & 2 & 5: 500GB can record more than 18 days. (4CH, Frame Best Quality, 30IPS)
- Model 3 & 4: 500GB can record more than 5 days. (4CH, Frame Best Quality, 30IPS)

Backup Function

- For model 1 & 5, support CD writer, USB flash drives and network remote recording & backup
- For model 2 & 4, support image backup with USB flash drives and net work remote recording & backup
- For model 3, support network remote recording & backup

Remote Surveillance

- Support remote surveillance up to 5 users simultaneously with licensed software AP and IE browser

Intelligent Motion Trigger Recording

- R.E.T.R. (Remote Event Trigger Recording) (This function is only for Model 5)
- With the advanced functions of motion detection, scheduled motion detection recording (4 different adjustable factors for motion detection sensitivity) and quick search, customized security environments are achieved
- Alarm trigger recording will send alerts with images to designated e-mails and the FTP address
- Support pre-alarm recording (8MB)

Covert Recording

- A mask replaces the live image with a blank screen and the monitor shows nothing, but the recording is still on

A/V Support

- Support 2 audio-in, 1 audio-out to record sounds (Model 1, Model 2 and Model 5)
  Support 1 audio-in, 1 audio-out to record sounds (Model 3 and Model 4)

- Support VGA output to monitor (optional)

General

- Support multi-language OSD
- Model 4 & 5 support IR remote control (Other models are optional)
- System auto recovery after power reconnected
- Support PTZ camera operations through RS-485 signals
- Support daylight saving function
- Support manual / timer / motion / alarm / network remote recording
- Ensure the authentication of recorded images with Watermark function
- Support TCP/IP, PPPoE, DHCP and DDNS network connection

1.3 Specification

SPECIFICATION*	Model 1	Model 2	Model 3	Model 4	Model 5
Video System	NTSC / PAL (switchable)				
Video Compression Format	Frame: MPEG 4 ; CIF: MPEG4		Frame: MJPEG ; CIF: MPEG4		Frame: MPEG 4 ; CIF: MPEG4
Video Input	4 Channels. Composite video signal 1 Vp-p 75Ω BNC				
Video Loop Out	4 Channels. Composite video signal 1 Vp-p 75Ω BNC				
Video Output	Main Monitor Output: Composite video signal 1 Vp-p 75Ω BNC Call Monitor Output: Composite video signal 1 Vp-p 75Ω BNC				
Maximum Recording Rate	Frame: 720 × 480 pixels with 30 IPS〈NTSC〉/ 720 × 576 pixels with 25 IPS〈PAL〉 CIF: 352 × 240 pixels with 120 IPS〈NTSC〉/ 352 × 288 pixels with 100 IPS〈PAL〉				
Adjustable Recording Speed	Frame: 30, 15, 7, 3 IPS〈NTSC〉/ 25, 12, 6, 3 IPS〈PAL〉 CIF: 120, 60, 30, 15 IPS〈NTSC〉/ 100, 50, 25, 12 IPS〈PAL〉				
Multi-language OSD	YES				
Image Quality Setting	Best, High, Normal, and Basic				
Hard Disk Storage	Accommodate 1 HDD (IDE type, ATA66), support HDD capacity over 500GB * HDD is optional.				
HDD Quick Cleaning	Quick clean up the “index system” of the recorded files. 500GB under 2 seconds				
Recording Mode	Manual／Timer／Motion／Alarm ／Remote				
Watermark	YES				
Refresh Rate	120 IPS for NTSC / 100 IPS for PAL				
Audio I/O	2 audio inputs, 1 audio output (Mono)		1 audio input, 1 audio output (Mono)		2 audio inputs, 1 audio output (Mono)
R.E.T.R. (Remote Event Trigger Recording)	NO				YES
Motion Detection Area	16 × 12 grids per camera for all channels				
Motion Detection Sensitivity	4 adjustable variables with precise calculation for motion detection				
Pre-alarm Recording	YES (8MB)				
USB Interface	Support USB 1.1/ 2.0 flash drive		NO	Support USB 1.1/ 2.0 flash drive	
Backup Device	Support USB 1.1/ 2.0 flash drive, CD writer and network remote backup	Support USB 1.1/ 2.0 flash drive and network remote backup	Network remote backup	Support USB 1.1/ 2.0 flash drive and network remote backup	Support USB 1.1/ 2.0 flash drive, CD writer and network remote backup
Web Transmitting Compression Format	Motion JPEG				
Ethernet	10/100 Base-T. Support remote control and live view via Ethernet				

* The specifications are subject to change without notice.

SPECIFICATION*	Model 1	Model 2	Model 3	Model 4	Model 5
Web Interface	Support licensed software AP and IE browser				
Remote Alarm Notification	E-mail images, and upload images to FTP site's specific account				
Network Connection	Support TCP/IP, PPPOE, DHCP and DDNS functions				
PTZ control	Support PELCO-D protocol				
IR Transmitter	Optional			YES	
Dwell Time (Sequential Channel Switch)	Programmable with adjustable dwell time (2, 4, 8, 16 sec.)				
Alarm I/O	4 inputs, 1 output				
Digital Zoom	2X digital zoom (live mode)				
Key Lock	YES				
Video Loss Detection	YES				
Camera Title	Support up to 6 letters				
Video Adjustable	Hue／Color／Contrast／ Brightness				
Date Display Format	YY/MM/DD, DD/MM/YY, MM/DD/YY, and Off				
Power Source	DC 19V				
Power Consumption	＜42 W				
Operating Temperature	10℃ ~ 40℃ (50℉~104℉)				
Dimensions (mm)	375mm (W) × 61mm (H) × 281mm (D)	343mm (W) × 59mm (H) × 223mm (D)	343mm (W) × 59mm (H) × 223mm (D)	345mm (W) x 68.3mm (H) x 225mm (D)	375mm (W) × 61mm (H) × 281mm (D)
System Recovery	System auto recovery after power reconnected				
Optional Peripheral	VGA converter				

1.4 Package Contents

ITEMS	Model 1	Model 2	Model 3	Model 4	Model 5
Digital Video Recorder (DVR)	V	V	V	V	V
Adapter and Power Cord	V	V	V	V	V
CD Manual & Hard Copy Quick Start	V	V	V	V	V
Free Licensed Software AP Disc	V	V	V	V	V
Free Compact Disc (CD)	V	-	-	-	V
Screws * 4	V	V	V	V	V
DSUB PIN Connector	V	V	V	V	V
IR Receiver & Transmitter	-	-	-	V	V

* The specifications are subject to change without notice.

2. FRONT AND REAR PANELS

2.1 Front Panels

1) LED Indication

The following LEDs will be on when:

HDD: HDD is reading or recording
HDD Full: HDD is full.
ALARM: Once the alarm is triggered
TIMER: When timer recording is turned on
PLAY: Under playing status
REC: Under recording status

2) MENU

Press “MENU” button to enter the main menu.

3) ENTER / SET

- Press “ENTER” button to confirm the setting.
  Press “SET” to change the position of the channel display.
  Press up/down/left/right direction buttons to select the channel that you want to change.
  Press “＋“ or “－“ to select the channel which You would like to show.

- Channel Display Position

Under the live mode, you can switch the positions of two channels in the following way:

Step1: Press “Set” to highlight one channel.

Step2: Press “UP“, “DOWN”, “LEFT”, “RIGHT” button to move the highlight to the channel you want to change its position.

Step3: Press “＋” or “－” to select the channel you want to switch its position with the one selected in Step2.

Step4: Press “ENTER” button to confirm the setting. For example, the position of CH2 & CH4 is switched as shown on the right side.

01	**04**
03	**02**

Under Live Mode

Under the playback mode, you can select a channel to display the live video instead of the playback video:

Step1: Press “Set” to highlight one channel.

Step2: Press “UP“, “DOWN”, “LEFT”, “RIGHT” button to move the highlight to the channel you want to view the live video.

Step3: Press “＋” or “－” to select the channel you want to view its live video.

Step4: Press “ENTER” button to confirm the setting. For example, CH2 playback view is replaced with CH4 live view as shown on the right side.

01	**04**
03	04

Under Playback Mode

4) SEARCH

Press “SEARCH” button to enter the search menu.

5) SLOW

Under the playback mode,
Model 1, 2 & 5: Press “SLOW” button to get 1/4X speed playback and press twice to get 1/8X speed playback.
Model 3 & 4: Press “SLOW” button to get 1/2X speed playback.

6) ZOOM

Press “ZOOM” button to enlarge the picture of selected channel (under the live mode).

7) ⊞ / －

Press "⊞" button to show the 4 channel display modes.
Press "－" button to change the setting in the menu.

8) SEQ /＋

Press "SEQ" button to activate the call monitor function, and press again to quit.
Press "＋" button to change the setting in the menu.

9) ⏻ or POWER

Press this button long enough to turn on/off your DVR.

Note: Under the recording mode, please stop recording before turning off your DVR.

---

10) "CH1" "CH2" "CH3" "CH4"

Press one of the buttons to select the channel to display.

11) REC

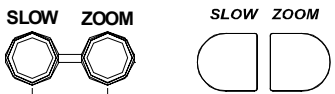
Press "REC" button to activate manual recording.

12) ⏵ or PLAY

Press this button to play the recorded video.

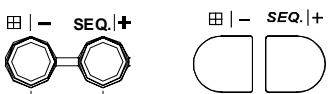
13) UP / PAUSE, DOWN / STOP, LEFT / REWIND, RIGHT / FORWARD,

Press one of the direction buttons to move the cursor up/down/left/right.
Under the playback mode:
Press "⏸" or "⏹" button to pause / stop playback. Press "⏪" or "⏩" button to fast rewind / forward.

14) 

or (Audio)

Press these two buttons at the same time to select live or playback sounds of the audio channels.

15) 

or (PTZ)

Press these two buttons at the same time to enter / exit the PTZ control mode.
In the PTZ control mode → Zoom in: Press "＋" button ; Zoom out: Press "－" button
Adjust PTZ angle: Press direction buttons to turn up/down/left/right

16) Switch NTSC / PAL System

Press "⏻" or "POWER" button on the DVR front panel to shutdown the DVR.
After shutdown the DVR, press and hold ⏪ (switch to NTSC) or ⏩ (switch to PAL) first, then press the power button again to reboot the DVR (press until the monitor shows video images).

Note: The DVR will automatically detect PAL/NTSC system. But you can also manually switch between PAL and NTSC systems.

---

17) Key Lock

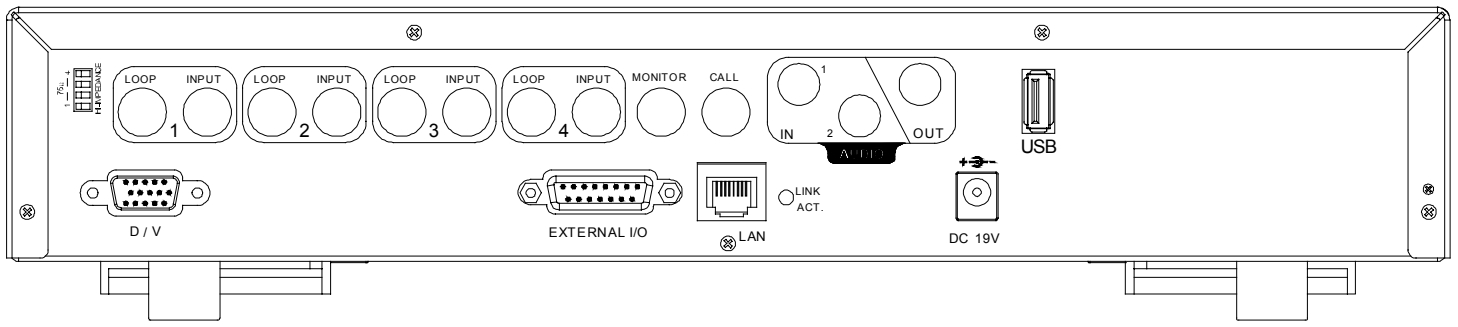
Press "REC" + "ENTER" on the DVR front panel at the same time to lock keys and to log in with another user name.

18) Open / Close the the CD Writer

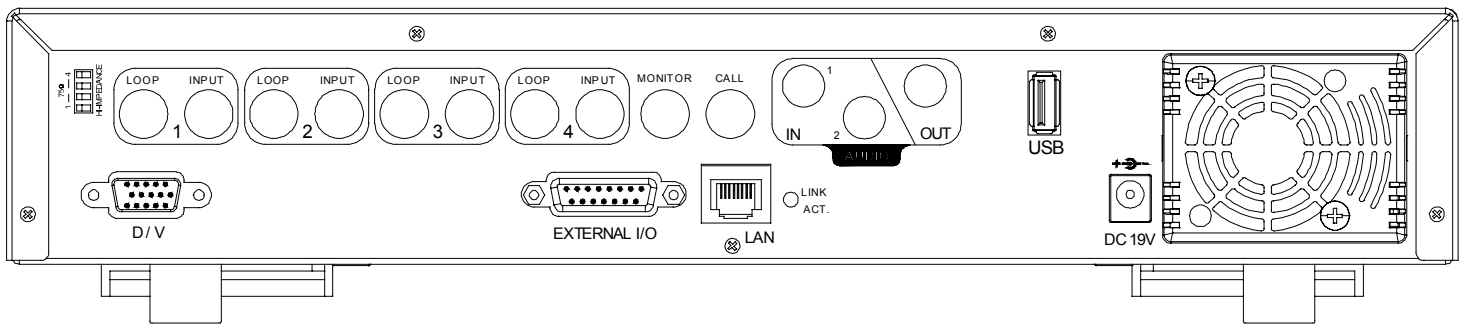
For Model 1 and Model 5, press "⏏" buttons at the same time to open / close the CD Writer.

2.2 Rear Panels

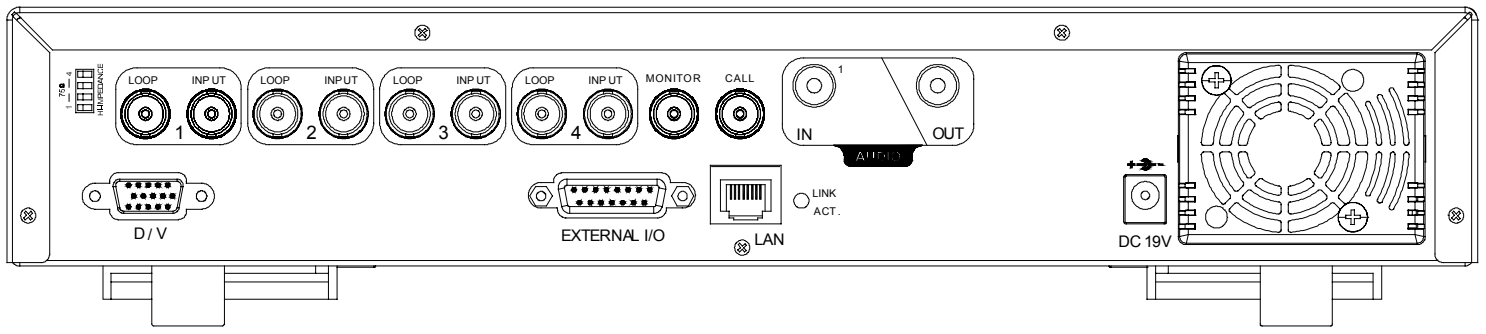
- **MODEL 1**



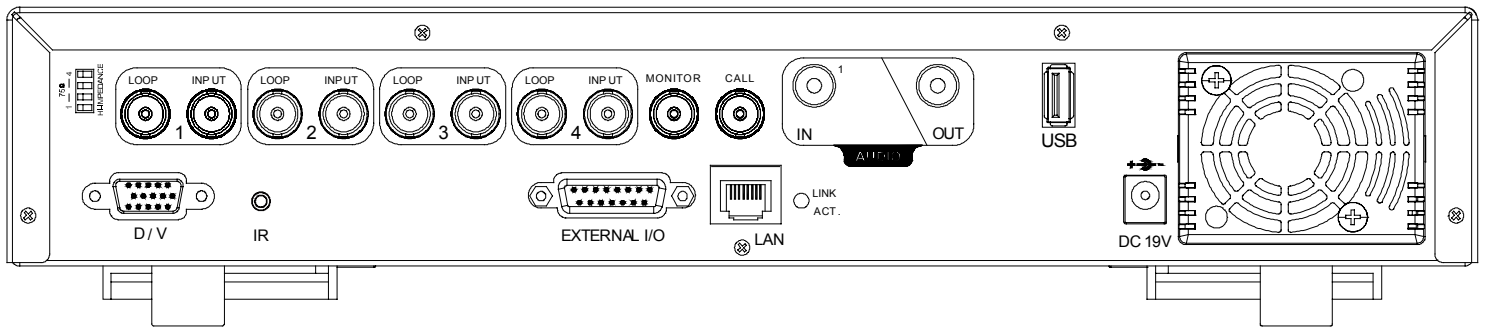
- **MODEL 2**



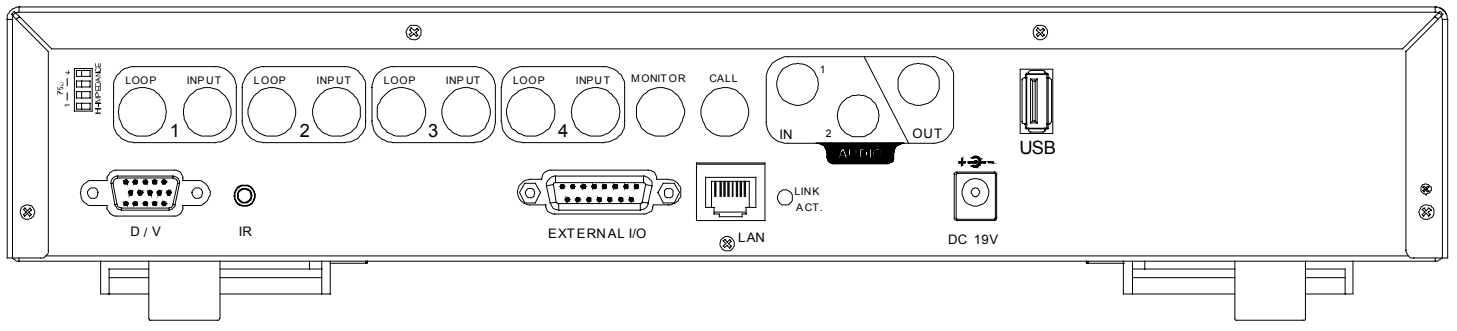
- **MODEL 3**



- **MODEL 4**



- **MODEL 5**



1) 75Ω / HI-IMPEDANCE

When using LOOP function, please switch to HI-IMPEDANCE. Otherwise, please switch to 75Ω.

2) LOOP / INPUT (For channel 1~4)

LOOP: Video output connector.
INPUT: Connect to video sources, such as cameras.

Note: If you want to playback the video with audio, please connect an audio camera to the correct channel.
Model 1, 2 & 5: Please connect audio cameras to INPUT1 and/or INPUT 2 on the DVR rear panel.
Model 3 & 4: Please connect audio camera to INPUT 1 on the DVR rear panel

---

3) MONITOR

Connect to MAIN monitor.

4) CALL

Connect to CALL monitor to show the channel display one by one.
When any alarm is triggered, CALL monitor will show the image of the triggered channel for a period of time.

5) Audio IN

Connect to audio sources, such as cameras equipped with the audio function.
When users start recording, the audio input will also be recorded.

6) Audio OUT

Connect to a monitor or speaker with 1 mono audio output.

7) USB (For MODEL 1, 2, 4 & 5)

Support USB flash drive firmware update and file backup.

Note: For the list of compatible USB flash drives, please refer to "APPENDIX 5 COMPATIBLE USB FLASH DRIVE BRAND" at page 55.

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8) D/V Port (Digital Video Port)

Connect to VGA connecter.

9) IR (For Model 4 & 5)

Connect the IR receiver for remote control.

10) EXTERNAL I/O

Insert the supplied 15PIN DSUB to this port for connecting external devices (external alarm, PTZ camera, etc).
For detailed I/O port PIN configuration, please refer to "APPENDIX 2 PIN CONFIGURATION" at page 51.

11) LAN

Connect to Internet by LAN cable.

12) LINK ACT.

When your DVR is connected to the Internet, this LED will be on.

13) DC 19V

Connect to the supplied adapter.

3. CONNECTIONS AND SETUP

3.1 Install HDD

The HDDs must be installed before the DVR is turned on. For detailed installation instructions, please refer to section "APPENDIX 1 INSTALL HDD" at page 50.

3.2 Camera Connection

The cameras must be connected and power-supplied before the DVR is turned on. For detailed DVR video input / output ports, please refer to section “2.2 Rear Panels” at page 6. For detailed external I/O port description, please refer to section “APPENDIX 2 PIN CONFIGURATION” at page 51. For detailed camera setup, please refer to its own manual.

Note: When using LOOP function, set the impedance switch at your DVR rear panel to **HI-IMPEDANCE** to decrease interferences. The default setting is **75Ω**.

3.2.1 Normal Camera Connection

1) Connect the camera with indicated power supply.
2) Connect the camera video output to the DVR video input port with a coaxial cable and BNC connector.

For detailed camera title, ID, protocol and baud rate setup, please refer to section “6.4.5 Remote” at page 22.

3.2.2 PTZ Camera Connection

1) Connect the PTZ camera with indicated power supply.
2) Connect the PTZ camera video output to the DVR video input port with a coaxial cable and BNC connector.
3) For using DVR to control the PTZ camera, please connect the RS485-A line (brown) of the PTZ camera to the PIN11 of the DVR DSUB solder side, and connect RS485-B line (orange) to the PIN10 of the DVR DSUB solder side. And then solder them together in case of loosening.

Note: For detailed camera ID, protocol and baud rate setup at DVR side, please refer to section “6.4.5 Remote” at page 22. For detailed camera ID, protocol and baud rate setup at remote AP software side, please refer to section “(1) Device” at page 39 (AP software system configuration). For detailed PTZ control instructions, please refer to section “6.6.5 PTZ Camera Setup and Control” at page “30”.

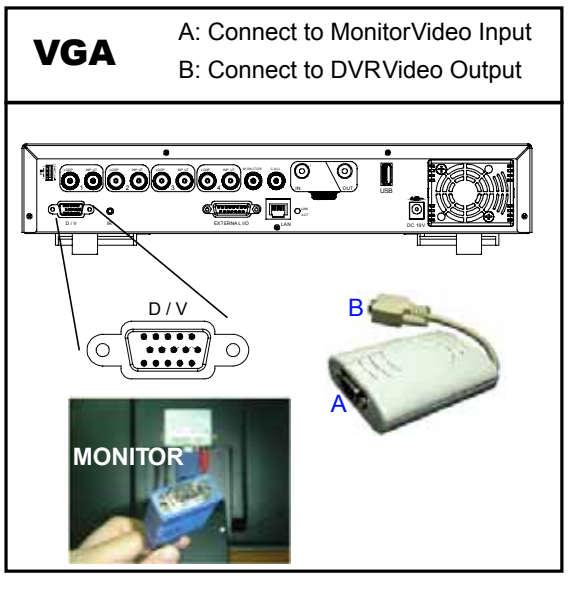
3.3 External Device Connections

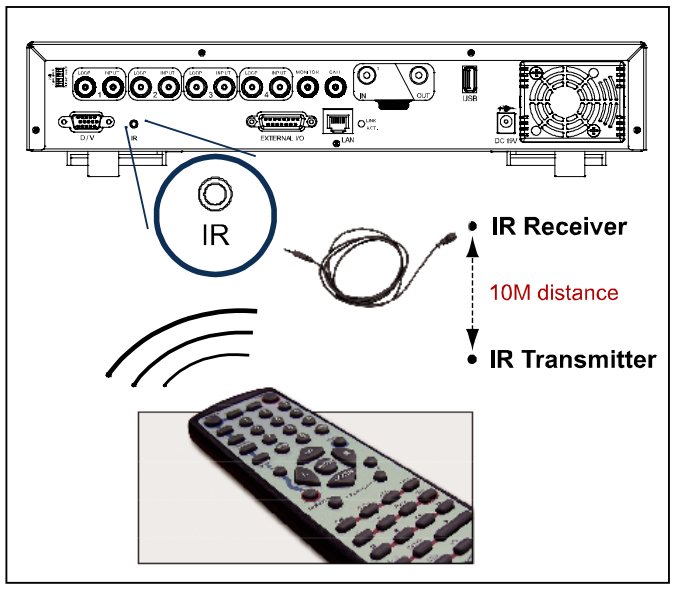
3.3.1 VGA Converter (Optional)

This optional peripheral (VGA Converter) allows your DVR to have VGA output function. Connect VGA CONNECTER (A) to the MONITOR VGA CONNECTER (a), and connect VGA CONNECTER (B) to the DVR D/V PORT (b). Please refer to the following figure as an example.

3.3.2 IR Transmitter

For MODEL 4 & MODEL 5 DVR, IR remote control is supported (Other models are optional). Please connect the IR receiver line to the IR port on the DVR rear panel. And make sure the IR function is activated in the DVR menu (The default setting is on). Please refer to the following figure as an example.





3.4 DVR Power Setup

This device should be operated only with the type of power source indicated on the manufacturer's label. Connect the indicated AC power cord to the power adapter, and plug into an electrical outlet. "POWER" LED will be on as red. Press "POWER" button, and "POWER" LED will be on as green. It takes approximately 10 to 15 seconds to boot the system.

3.5 Date and Time Setting

Before operating your DVR, please set the date and time on your DVR first.

You can use the following buttons for menu setting:

BUTTON	FUNCTION
UP, DOWN, LEFT, RIGHT	Move the cursor.
＋ , －	Choose numbers / selections.
ENTER	Go to the submenu / confirm the selection.
MENU	Go to the menu list / confirm the change / exit the menu list.

1) Date and System Time:

The menu path is as following: "MENU" → "DATE".

2) Daylight Saving:

The menu path is as following: "MENU" → "DATE" → "DAYLIGHT SAVING". Take the following option as an example:

DAYLIGHT SAVING		
START	4TH-SUN-MAR	24:00:00
END	4TH-SUN-OCT	24:00:00
ADJUST	01:00	

Note: Please DO NOT change the date or time of your DVR after the recording function is activated. Otherwise, the recorded data will be disordered and you will not be able to find the recorded file to backup by time search. If users change the date or time accidentally when the recording function is activated, it's recommended to clear all HDD data, and start recording again.

3.6 LAN or Internet Setup

3.6.1 STATIC IP

1) Build a Local Area Network (LAN) between DVR and PC/NB with network cable:

Your NB/PC and DVR must be under the same network domain to build the area network. Please change the IP address of your PC/NB into 192.168.1.X (X can be the number between 1~255, except 10) and the subnet mask into 255.255.255.0 for communicate with the DVR.

Note: Before changing the network properties of your **PC/NB**, please write down the original network properties in case you need to recover the properties later.

Install the supplied AP software on your NB/PC. Then, log into the DVR with the supplied AP software for the following default DVR settings.

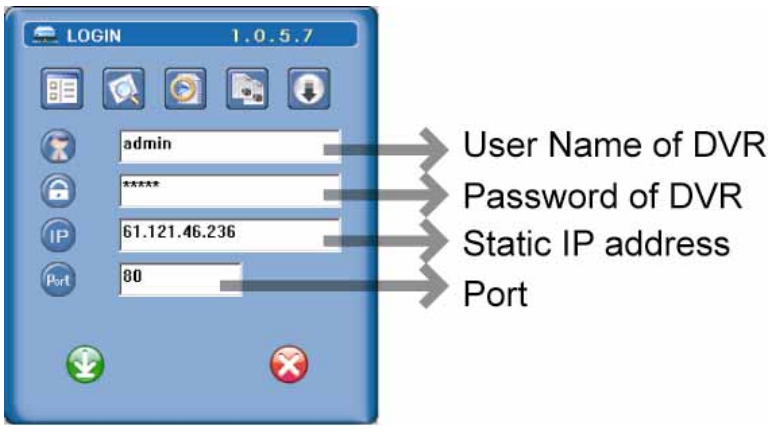
- The DVR default IP address: 192.168.1.10
- The DVR default account / password: admin
- The DVR default port: 80

2) Set DVR network setting in "SYSTEM CONFIG" → "Network" of the supplied AP:

In the "SYSTEM CONFIG" → "Network" of the supplied AP, select the "**Static IP**" in "IP TYPE" section. And then type the "**Server IP**", "**Gateway**", "**Net Mask**" and "**Web Port**" (1~9999) information obtained from your ISP.
Press "APPLY" button to confirm the setting.

3) Login your DVR via an Ethernet or dial-up network.:

After setting up the network information of the DVR and connect it to the network, you can use the IP address / Port / Account / Password you just entered in the supplied AP software to log into your DVR remotely.



3.6.2 DDNS Apply

You need to apply a DDNS account before setting PPPoE or DHCP connection. DDNS is a service for transforming the dynamic IP corresponding to a specific “Hostname”. For DDNS setup, please refer to the steps below.

- Go to a website which provides free DDNS services and apply a “Hostname”.
  For example, go to http://www.dyndns.com.
- Enter all the information necessary for signing up an account according to the website instructions.
- Then, you will see the screen “Account Created”, and Dyndns will email the instructions to your specified E-mail address for enabling your account. You must complete the procedure according to the instructions in the mail. That is to must visit the confirmation address within 48 hours of the time that the e-mail was sent to complete the account creation process. Then, you will see “Account Confirmed”. Your account is created successfully now.
- Log in with your account information and click ”My Service”.
- Click ”Add Host Services”.
- Click ”Add Dynamic DNS Host”.
- Fill in and choose the desired host name.
- The host name is created. You will be connected to the corresponding IP address whenever you enter this hostname.

3.6.3 Dynamic IP – PPPOE

1) Build a Local Area Network (LAN) between DVR and PC/NB with network cable:

Your NB/PC and DVR must be under the same network domain to build the area network. Please change the IP address of your PC/NB into 192.168.1.X (X can be the number between 1~255, except 10) and the subnet mask into 255.255.255.0 for communicate with the DVR.

Install the supplied AP software on your NB/PC. And then login the DVR with the supplied AP software for the following default DVR settings.

- The DVR default IP address: 192.168.1.10
- The DVR default account / password: admin
- The DVR default port: 80

2) Set DVR network setting in “SYSTEM CONFIG” → “Network” of the supplied AP:

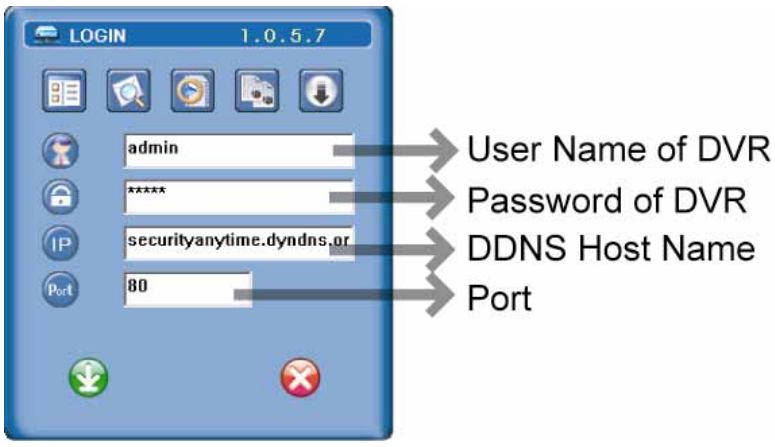
In the “SYSTEM CONFIG” → “Network” of the supplied AP, select the “**PPPOE**” in “IP TYPE” section. And then type the “**User Name**” and “**Password**” obtained from your ISP. Press ”APPLY” button to confirm the setting.

3) Set DVR DDNS setting in the “SYSTEM CONFIG” → “DDNS” of the supplied AP software:

- DDNS: Choose “Enable”.
- User Name: Type your **DDNS account**.
- Password: Type your **DDNS password**.
- Domain: Type the “**Host Name**” you applied previously (EX: securityanytime.dyndns.org).
- System Name: Choose the **DDNS server** where you applied the domain name (EX: dyndns).
- After setting, please press “APPLY” button to confirm and finish the setting.

4) Login your DVR via an Ethernet or dial-up network.:

After setting up the network information of the DVR and connect it to the network, you can type DDNS host name, default user name and password in the supplied AP software login page to log into your DVR remotely.



3.6.4 Dynamic IP – DHCP

Get a router and use the default IP address provided by your router to login to the router. Enable the DHCP server and set the starting IP address, ending IP address and lease time. The DHCP Server of the router will automatically allocate an unused IP address from the IP address pool to the requesting computer.

1) Build a Local Area Network (LAN) between DVR and PC/NB with network cable:

Your NB/PC and DVR must be under the same network domain to build the area network. Please change the IP address of your PC/NB into 192.168.1.X (X can be the number between 1~255, except 10) and the subnet mask into 255.255.255.0 for communicate with the DVR.

Install the supplied AP software on your NB/PC. And then login the DVR with the supplied AP software for the following default DVR settings.

- The DVR default IP address: 192.168.1.10
- The DVR default account / password: admin
- The DVR default port: 80

2) Set DVR network setting in “SYSTEM CONFIG” → “Network” of the supplied AP:

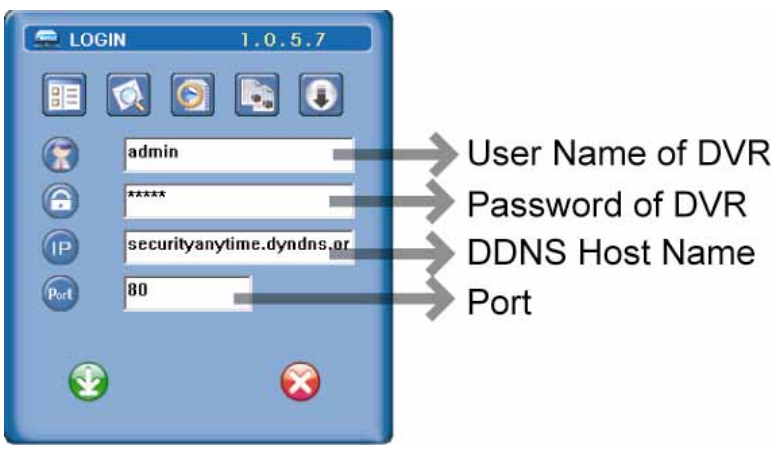
In the “SYSTEM CONFIG” → “Network” of the supplied AP, select the “**DHCP**” in “IP TYPE” section. Then press ”APPLY” button to confirm the setting.

Set DVR DDNS setting in the “SYSTEM CONFIG” → “DDNS” of the supplied AP software.

- DDNS: Choose “Enable”.
- User Name: Type your **DDNS account**.
- Password: Type your **DDNS password**.
- Domain: Type the “**Host Name**” you applied previously (EX: securityanytime.dyndns.org).
- System Name: Choose the **DDNS server** where you applied the domain name (EX: dyndns).
- After setting, please press “APPLY” button to confirm and finish the setting.

3) Login your DVR via an Ethernet or dial-up network:

After setting up the network information of the DVR and connect it to the network, you can type DDNS host name and default user name and password in the supplied AP software login page to log into your DVR remotely.



3.7 Password and User Name Setting

3.7.1 DVR Password Setting

The menu path is as following: MENU → ADVANCE → SYSTEM → PASSWORD → SETUP → ADMIN PASSWORD / GUEST PASSWORD. You can use the following buttons for menu setting:

BUTTON	FUNCTION
UP, DOWN, LEFT, RIGHT	Move the cursor.
＋ , －	Choose numbers / selections.
ENTER	Go to the submenu / confirm the selection.
MENU	Go to the menu list / confirm the change / exit the menu list.

1) Admin password:
   Password for supervisor, allow all the setup of DVR.

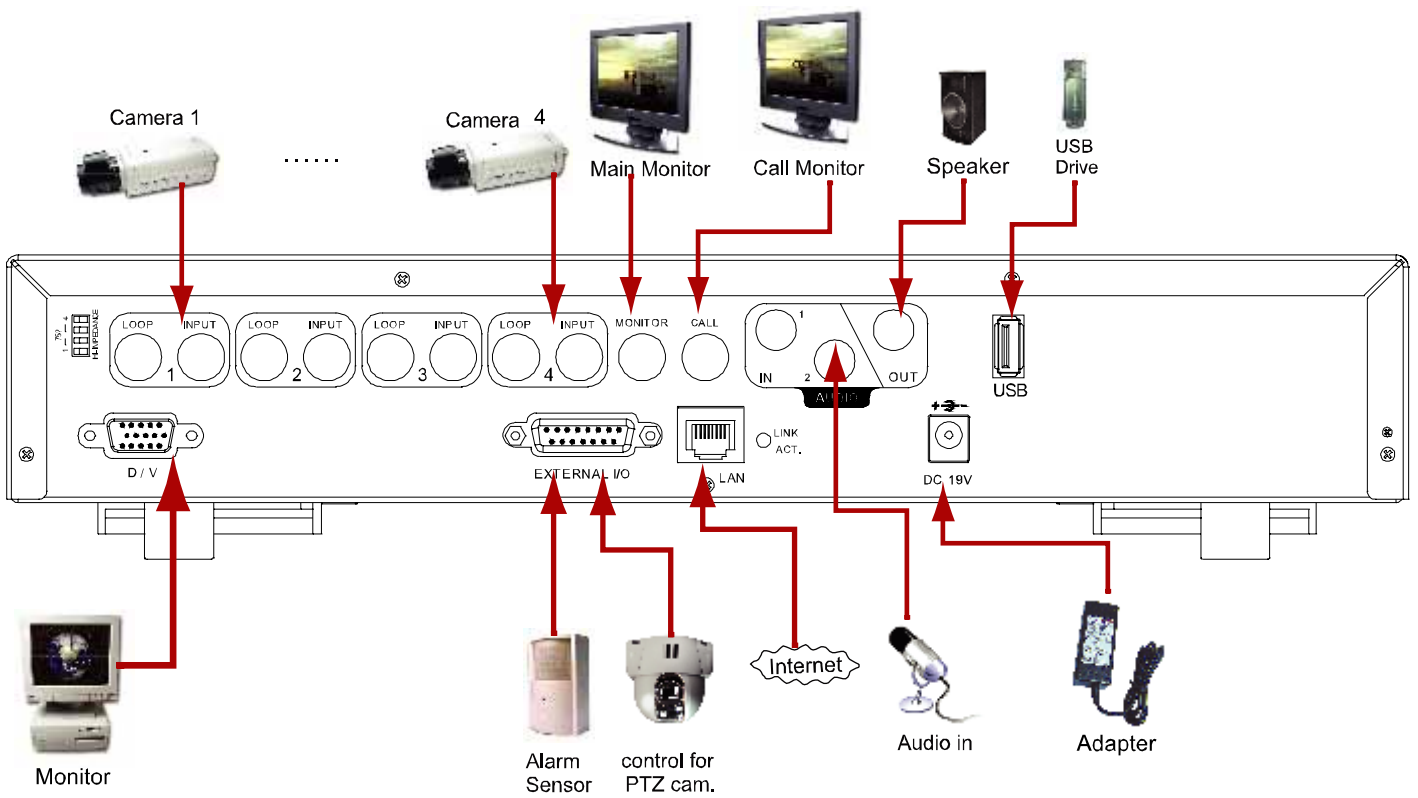
2) Guest password:
   Only allow viewing the live streaming video and sequencing display, shifting the channel display, and locking keys.

3.7.2 Remote Login Password and User Name Setting

In the “SYSTEM CONFIG” → “Account” of the supplied AP software, you can set up user accounts (max. 5 accounts), password, life time, and authority level (max. 5 users on line at the same time) for remote login to the DVR. For detailed instructions, please refer to “(1) Account” in the section “7.5.4 General” at page 46.

3.8 System Diagram

After you finish all the connections, a surveillance system is established and you can experience the marvelous and useful functions of this DVR. The diagram below illustrates all the available connections of this DVR for you to picture your surveillance system (Take Model 1 as an example).



4. BASIC OPERATION

4.1 Recording

This device offers three recording modes: manual record, event record and timer record. If the power is off accidentally, the recorded video data will not be lost and is safely stored in the HDD. The device will return to the original recording status after the power is on again.

- MANUAL RECORD (continuous recording)

  Recording is initiated by manually pressing “REC” button on the front panel.
  This mode is indicated by the sign “●” on the screen.

- EVENT RECORD (triggered by motion and external alarm)

  When this function is activated, the recording is triggered by motion or external alarms.
  This mode is indicated by the sign " " (motion) or " " (external alarm) on the screen.

- TIMER RECORD (scheduled time)

  Recording is scheduled by TIMER function.
  Indicated by the wording “**TIMER RECORD**” on the monitor.

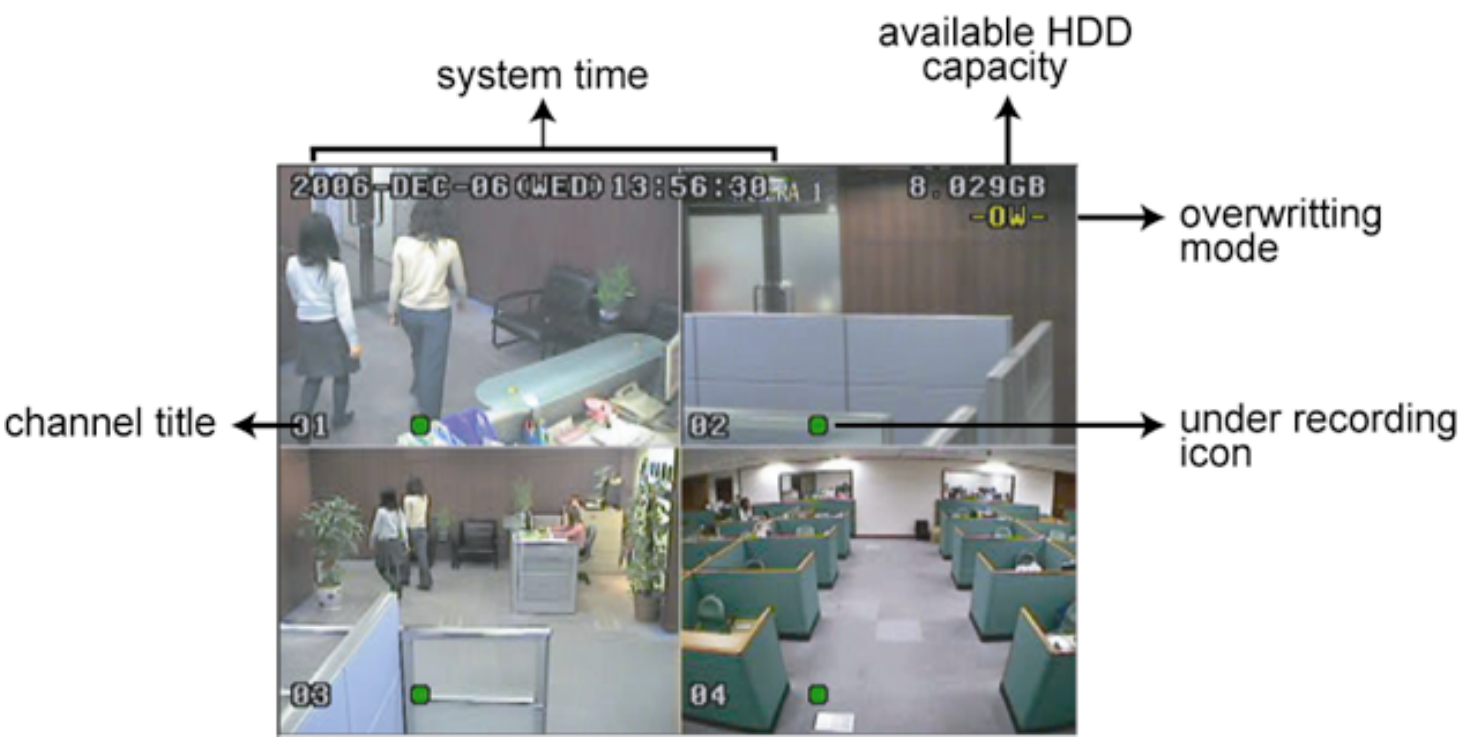
Note: When the recording function is activated, please **DO NOT** change the date or time on your DVR. The recorded data will be disordered and you will not be able to find the recorded data to backup by time search.
If users change the date or time accidentally when the recording function is activated, please clear all HDD data, and start recording again.

Overwriting Mode

If the overwriting mode is enabled, you will see “-OW-” (1) under the recording mode except the system time (2), available HDD capacity (3), recording icon (4) and channel title (5).

When the HDD is full under “-OW-” recording mode, the previous recorded data will be overwritten without notice. Under “-OW-" mode, this device will clear **8GB** data from the oldest for continuous recording once the HDD is full.

To turn on/off this mode, please refer to the section “6.4.6 System” at page 22.



4.2 Playback

Press "▷" or "PLAY" button on the front panel, and the device will display the last recorded video.

Note: There must be at least 8192 images of recorded data for playback to work properly. If not, the device will stop playback. For example, if the IPS is set to 30, the recording time should be at least 273 seconds (8192 images / 30 IPS) for the playback to work properly.

Playback related operations are described below:

- Fast Forward (⏩) / Fast Rewind (⏪)

  You can increase the speed for fast forward and rewind on this device. In the playback mode:

  Press "⏩ " once to get 4X speed forward and press twice to get 8X speed, etc. And the maximum speed is 32X.

  Press "⏪ " once to get 4X speed rewind and press twice to get 8X speed, etc. And the maximum speed is 32X.

- Pause (⏸) / Image Jog

  Press "⏸" button to pause the video playback.

  In the Pause mode:

  Press "⏭ " button once to get one frame forward.

  Press "⏮ " button once to get one frame rewind.

- Stop (⏹)

  Pressing "⏹" button under all circumstances will return this device to live monitoring mode.

- Channel Display Mode

  Display mode:

  Press "⊞" button to show the 4 channel display modes.

  Full screen view:

  Press one of the number buttons from 1-4 to show the selected channel in the full screen.

  Under the playback mode, you can select a channel to display the live video instead of the playback video.

  For details, please refer to "Position of Channel Display" in section "2.1 Front Panels" at page 4.

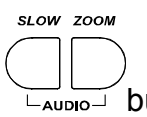
- Slow Playback

  Model 1, 2 & 5: Press "SLOW" button to get 1/4X speed playback and press twice to get 1/8X speed playback.

  Model 3 & 4: Press "SLOW" button to get 1/2X speed playback.

- Audio

  Press

  or 

  buttons at the same time to select to play either live (L) or playback (P) sound.

  AUDIO 1 (L) – 1st audio channel, live audio;

  AUDIO 1 (P) – 1st audio channel, playback audio

  AUDIO 2 (L) – 2nd audio channel, live audio (Only Model 1, 2 & 5 have AUDIO 2 option)

  AUDIO 2 (P) – 2nd audio channel, playback audio (Only Model 1, 2 & 5 have AUDIO 2 option)

Note: If you want to playback the video with audio, please connect an audio camera to the correct channel.

Model 1, 2 & 5: Please connect audio cameras to INPUT1 and/or INPUT 2 on the DVR rear panel.

Model 3 & 4: Please connect audio camera to INPUT 1 on the DVR rear panel.

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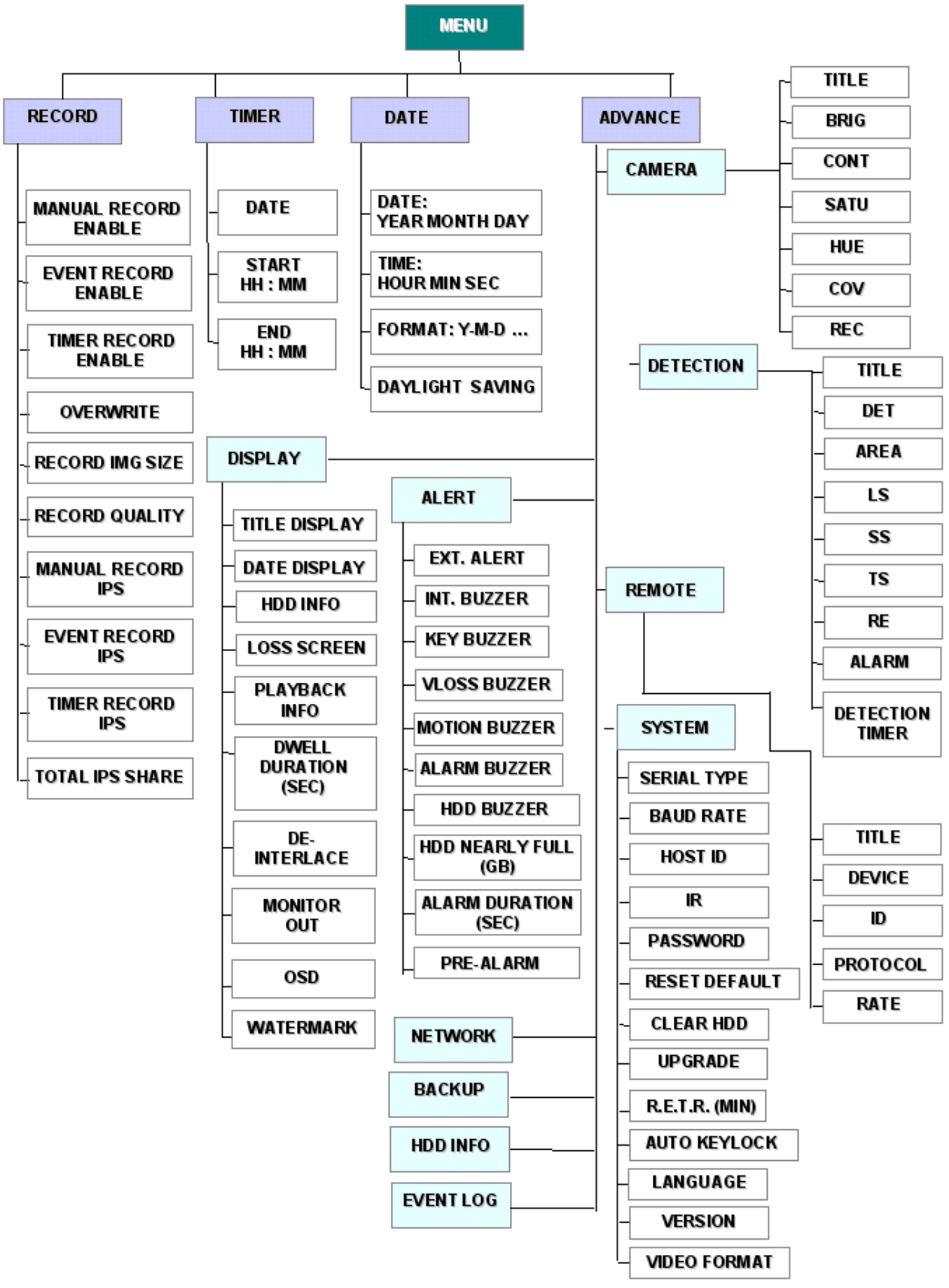
5. MAIN MENU

5.1 Menu Tree



You can use the following buttons for menu setting:

BUTTON	FUNCTION
UP, DOWN, LEFT, RIGHT	Move the cursor.
＋ , －	Choose numbers / selections.
ENTER	Go to the submenu / confirm the selection.
MENU	Go to the menu list / confirm the change / exit the menu list.

Note: The supported functions of Backup, IR remote control and R.E.T.R. vary according to the model you're using. Please refer to the specification.

6. MENU FUNCTION

6.1 Record

In this menu list, you can set record settings. Press “MENU” button on the front panel to enter the main menu list. The default admin password is **0000**. Enter the default password, and press “ENTER”. Users can change the password later. Please refer to the section “6.4.6 System” at page 22.

Move the cursor to “RECORD”, and press ” ENTER”. The screen will show the following options:

MENU
RECORD
TIMER
DATE
ADVANCE

RECORD
MANUAL RECORD ENABLE
EVENT RECORD ENABLE
TIMER RECORD ENABLE
OVERWRITE
RECORD IMG SIZE
RECORD QUALITY
MANUAL RECORD IPS
EVENT RECORD IPS
TIMER RECORD IPS
TOTAL IPS SHARE

The submenu items are described below:

1) MANUAL RECORD ENABLE

   Start / stop the manual recording function.

2) EVENT RECORD ENABLE

   Start / stop the event recording function. When this function is enabled, the recording will be triggered by any motion or external alarm.

3) TIMER RECORD ENABLE

   Start / stop the timer recording function.

4) OVERWRITE

   Select to overwrite previous recorded data in your HDD. When the HDD is full under O/W recording mode, this device will clear 8GB data from the oldest for continuous recording without notice.

5) RECORD IMG SIZE

   Select one of the image sizes: FRAME or CIF.

Note: When changing the record image size, please stop recording first.

6) RECORD QUALITY

   Select one of the 4 quality options: BEST, HIGH, NORMAL & BASIC.

7) MANUAL RECORD IPS

   Select the images per second for MANUAL RECORD.

8) EVENT RECORD IPS

   Select the images per second for EVENT RECORD (Recording that is triggered by alarm or motion).

9) TIMER RECORD IPS

   Select the images per second for TIMER RECORD (Recording that is activated according to the scheduled time.).

   The IPS options are as following:

NTSC		PAL	
FRAME	30, 15, 7, 3	FRAME	25, 12, 6, 3
CIF	120, 60, 30, 15	CIF	100, 50, 25, 12

10) TOTAL IPS SHARE

   This option is used to select how this device divides its total IPS. The more IPS one channel gets, the more smooth the recorded video will be played. Select one of the IPS share setting: FIX or GROUP.
   FIX: IPS per channel = RECORD IPS ÷ number of channels
   GROUP (Suitable for Frame mode):
   IPS per channel = RECORD IPS ÷ 2 ÷ number of channels in a group which is under recording.

NOTE: For Model 3 & 4, the total IPS share is always “FIX”.

6.2 Timer

Press “MENU” button on the front panel to enter the main menu list. Move the cursor to “TIMER”, and press ”ENTER”. The screen will show the following options.

MENU
RECORD
TIMER
DATE
ADVANCE

RECORD			
DATE	START		END
OFF	00 : 00	-	00 : 00
DAILY	08 : 00	-	18 : 00
SUN	06 : 00	-	23 : 00
MON-FRI	18 : 00	-	23 : 00
OFF	00 : 00	-	00 : 00
OFF	00 : 00	-	00 : 00
OFF	00 : 00	-	00 : 00

The submenu items are described below:

1) DATE

Select from the following 11 options to schedule up to 7 sets of recording days: SUN / MON / TUE / WED / THU / FRI / SAT / MON–FRI / SAT-SUN / DAILY / OFF.

If you plan to set the timer recording across the midnight, there are two ways to set the timer recording schedule. Please check the examples below.

Example 1:

If you only want to set the recording schedule from Sunday 23:30 to Monday 23:30, set the schedule as Sunday from 23:30 to 23:30.

Example 2:

If you want to set the recording schedule from Sunday 08:00 to Monday 15:00, set the schedule as Sunday from 08:00 to 24:00, and Monday 24:00 to 15:00.

Note: Before setting the timer recording schedule, please turn on “TIMER RECORD ENABLE” in “RECORD” menu list. For details, please refer to the section “6.1 Record” at page 16.

6.3 Date

In this menu list, you can set up the system date and time for this device.

Note: When the recording function is activated, please **DO NOT** change the date or time on your DVR. For details, please refer to the section “4.1 Recording” at page 13.

Press “MENU” button on the front panel to enter the main menu list. Move the cursor to “DATE”, and press ”ENTER”. The screen will show the following options.

MENU
RECORD
TIMER
DATE
ADVANCE

DATE	
DATE	2006 – Dec - 01 12 : 15 : 30
FORMAT	Y - M - D
DAYLIGHT SAVING	ON

The submenu items are described below:

1) DATE:

Set the current date and time. The default order is “YEAR – MONTH – DATE HOUR : MIN : SEC”.

2) FORMAT

Select one date format from the following 3 options: Y-M-D, M-D-Y, D-M-Y.

3) DAYLIGHT SAVING

Specify whether to use daylight-saving time (ON / OFF). If it’s set to ON, press “ENTER” to go to its submenu for further settings. You will see a similar screen as following.

DAYLIGHT SAVING		
START	4TH - SUN - MAR	24 : 00 : 00
END	4TH - SUN - OCT	24 : 00 : 00
ADJUST	01 : 00	

Set the start time and end time, and adjust the daylight saving time in hour. The above example means during the daylight-saving time period (starting from the 4th Sunday of March and ending on the 4th Sunday of October), the system time will plus one hour.

6.4 Advance

Press “MENU” button on the front panel to enter the main menu list. Move the cursor to “ADVANCE”, and press ”ENTER”. The screen will show the following options.

MENU
RECORD
TIMER
DATE
ADVANCE

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

6.4.1 Camera

In this submenu, you can make advanced camera settings, such as changing the camera title, or adjust the brightness. Move the cursor to “CAMERA”, and press ”ENTER”. You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

CAMERA						
TITLE	BRIG	CONT	SATU	HUE	COV	REC
01	110	120	128	128	NO	YES
02	110	120	128	128	NO	YES
03	110	120	128	128	NO	YES
04	110	120	128	128	NO	YES

The submenu items are described below:

1) TITLE
   You can change the default camera naming here. The default title is the channel number.
   Move the cursor to the camera title you want to change, and press “ENTER” to access the character selection screen.
   Assign a new name to the camera up to six characters (letters or symbols).

2) BRIG/CONT/SATU/HUE
   You can adjust the brightness/contrast/saturation/hue of each channel here. The default value of BRIG is 110, and others are 128. The value is adjustable from 0 to 255.

3) COV
   Select if you want to mask the selected channel under recording (YES/NO). When this function is activated, the wording “COV” will be shown on the screen.

4) REC
   Select if you want to enable recording for the selected channel (YES/NO). When this function is activated, the symbol “●” will be shown on the channel screen.

6.4.2 Detection

In this submenu, you can set up detection-related functions: DETECTION SETUP and DETECTION TIMER.
Move the cursor to “DETECTION”, and press ”ENTER”. The screen will show the following options.

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

DETECTION
DETECTION SETUP
DETECTION TIMER

(1) Detection Setup

Move the cursor to “DETECTION SETUP”, and press ”ENTER”. You will see a similar screen as the following:

DETECTION
DETECTION SETUP
DETECTION TIMER

DETECTION							
TITLE	DET	AREA	LS	SS	TS	RE	ALARM
01	ON	SETUP	07	03	02	10	LOW
02	OFF	SETUP	07	03	02	10	OFF
03	OFF	SETUP	07	03	02	10	LOW
04	OFF	SETUP	07	03	02	10	HIGH
PREV	NEXT						

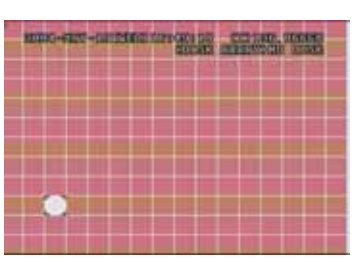
The submenu items are described below:

1) TITLE: Show the camera title of each channel set in “CAMERA”.

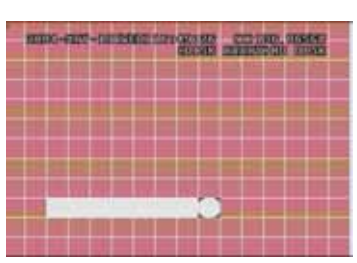
2) DET: Select if you want to activate the motion detection function for the selected channel (ON/OFF).

3) AREA
Press “ENTER” button to set the detection area. You will see similar screens as the following:
Pink blocks represent the area that is not being detected while the transparent blocks are the area under detection.

Note: If the connected video output device is LCD monitor, but the “MONITOR OUT” setting in “DISPLAY” menu is "MAIN", the motion detection area setting will be disabled.



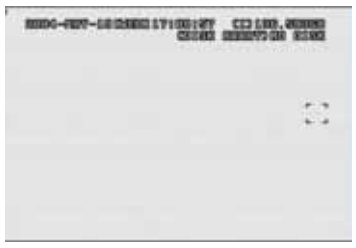
Press “ENTER” to confirm the start area.



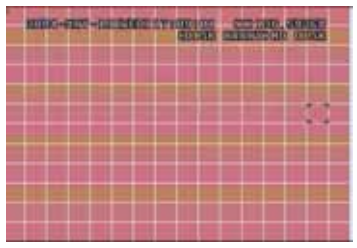
Press “LEFT” or “RIGHT” to choose the width of the area

Press “UP” or “DOWN” to choose the height of the area, and press “ENTER” again to confirm.

You can also up set up multi-detection areas.



Press “－” to set the whole area under detection



Press “＋” to set the whole area undetected

4) LS (Level of Sensitivity)

“LS” is to set the sensitivity of comparing two different images. The smaller the value is, the higher sensitivity for motion detection. The highest sensitivity setting is 00, and the lowest sensitivity setting is 15. The default value is 07.

5) SS (Spatial Sensitivity)

“SS” is to set the sensitivity for detecting the size of one object (the number of the grids) on the screen. The smaller the value is, the higher sensitivity for motion detection.

The highest sensitivity setting is 00, and the lowest sensitivity setting is 15. The default setting is 03.

Note: The default setting of SS is 03, which means once an object is detected more than 3 grids, the system will get triggered. So the value of SS must be less than the number of grids that you set up for the motion detection area.

6) TS (Time of Sensitivity)

“TS” is to set the sensitivity regarding how long one object stays in the detection area and triggers the recording. The smaller the value is, the higher sensitivity for motion detection.
The highest sensitivity setting is 00, and the lowest sensitivity setting is 15. The default setting is 02.

7) RE (Reference)

“RE” is to set a reference for detection. The default value is 10, which means the DVR will compare 10 continuous images at one time according to the sensitivity of LS, SS, TS simultaneously.
The bigger the value is, the higher sensitivity for motion detection. The highest sensitivity is 61.

8) ALARM

Select LOW / HIGH for the alarm polarity. The default alarm value is OFF.

(2) Detection Timer

Move the cursor to “DETECTION TIMER”, and press ”ENTER”. You will see a similar screen as the following:

DETECTION
DETECTION SETUP
DETECTION TIMER

DETECTION TIMER			
DATE	START		END
OFF	00 : 00	-	00 : 00
DAILY	08 : 00	-	18 : 00
SUN	06 : 00	-	23 : 00
MON-FRI	18 : 00	-	23 : 00
OFF	00 : 00	-	00 : 00
OFF	00 : 00	-	00 : 00
OFF	00 : 00	-	00 : 00

Set the date, start time and end time for the detection function. The setting method is similar to “TIMER”. Please refer to the section “6.2 Timer” at page 17.

6.4.3 Display

In this menu list, you can check and change some display settings.
Move the cursor to “DISPLAY”, and press ”ENTER”. You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

DISPLAY	
TITLE DISPLAY	ON
DATE DISPLAY	ON
HDD INFO	ON
LOSS SCREEN	BLUE
PLAYBACK INFO	NORMAL
DWELL DURATION (SEC)	2
DE-INTERLACE	ON
MONITOR OUT	MAIN
OSD	SETUP
WATERMARK	ON

The submenu items are described below:

1) TITLE DISPLAY
   Select to display the channel title or not (ON / OFF).

2) DATE DISPLAY
   Select to display the date or not (ON / OFF).

3) HDD INFO
   Select to display HDD remaining capacity or not (ON / OFF).

4) LOSS SCREEN
   Set the color for the video loss screen (BLUE / BLACK).

5) PLAYBACK INFO
   Set the position where playback information will be indicated: CENTER or NORMAL (on the button of the left-hand side of the screen).

6) DWELL DURATION (SEC)
   Set the duration time of each channel in second for CALL MONITOR (2 / 4 / 8 / 16).

7) DE-INTERFACE
   Select to enable or disable “DE-INTERLACE” function (ON / OFF).

8) MONITOR OUT
   Select "MAIN" when the video output device is CRT monitor; select "VGA" when the video output device is LCD monitor.

Note: If the connected video output device is LCD monitor, but the setting here is "MAIN", the motion detection area setting will be disabled.
For LCD monitor connection, you also need a VGA converter (optional).

---

9) OSD (Multilingual)
   You can set the customized OSD color here.

Move the cursor to “OSD”, and press ”ENTER” to go to the setup view. You will see a similar screen as the following:

DISPLAY	
TITLE DISPLAY	ON
DATE DISPLAY	ON
HDD INFO	ON
LOSS SCREEN	BLUE
PLAYBACK INFO	NORMAL
DWELL DURATION (SEC)	2
DE-INTERLACE	ON
MONITOR OUT	MAIN
OSD	**SETUP**
WATERMARK	ON

OSD SETUP	
MENU TITLE BACKGROUND	GREEN
MENU BACKGROUND	YELLOW
CURSOR	YELLOW
MESSAGE TITLE BACKGROUND	RED
MENU STYLE	3D
MENU TITLE FONT	YELLOW
MENU FONT	PURE WHILE
RECORD SYMBOL	GREEN
ALERT FONT	RED

The default OSD color setting is as the above screen. There are 11 colors for your choice: WHITE, YELLOW, CYAN, GREEN, MAGENTA, RED, BLUE, BLACK, GRAY, PURE GRAY, and PURE WHITE.

10) WATERMARK

In the playback mode of the software AP, users can prove the authenticity of the backup video. If the backup video had been modified, the video image will turn to light red, and the playback will be paused.

Note: This function is always on and non-switchable.

6.4.4 Alert

In this menu list, you can set alerts for different kinds of situations, such as when HDD is full.
Move the cursor to “ALERT”, and press ”ENTER”. You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

ALERT	
EXT. ALERT	ON
INT. BUZZER	ON
KEY BUZZER	ON
VLOSS BUZZER	ON
MOTION BUZZER	ON
ALARM BUZZER	ON
HDD BUZZER	ON
HDD NEARLY FULL (GB)	05
ALARM DURATION (SEC)	05
PRE-ALARM	OFF

The submenu items are described below:

1) EXT. ALERT

Select to enable or disable the sound when any external alarm is triggered (ON / OFF).

2) INT. BUZZER

Select to enable or disable the sound (ON / OFF) for all the internal buzzers: KEY BUZZER, VLOSS BUZZER, MOTION BUZZER, ALARM BUZZER, and HDD BUZZER.

Note: When this item is set to OFF, item 3) to item 7) will be disabled even though they are set to ON.

3) KEY BUZZER

Select to enable or disable the sound when pressing the buttons on the front panel (ON / OFF).

4) VLOSS BUZZER

Select to enable or disable the sound when video loss happened (ON / OFF).

5) MOTION BUZZER

Select to enable or disable the sound when any motion alarm is triggered (ON / OFF).

6) ALARM BUZZER

Select to enable or disable the sound when any internal alarm is triggered (ON / OFF).

7) HDD BUZZER

Select to enable or disable the sound when HDD is full (ON / OFF).

8) HDD NEARLY FULL (GB)

If HDD buzzer is enabled, you can choose to have a buzzer notification when the HDD available capacity is 5/10/15 GB left.

9) ALARM DURATION (SEC)

Press “ENTER” or “＋” / “－” button to set the duration time of alarm recording in second (5 / 10 / 20 / 40).

10) PRE-ALARM

Select to enable or disable the pre-alarm function (ON / OFF).
When pre-alarm and event recording functions are both activated, the DVR will record 8MB data before any alarm / motion is triggered.

6.4.5 Remote

In this menu list, you can set up remote devices to work properly.
Move the cursor to “REMOTE”, and press ”ENTER”. You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

REMOTE				
TITLE	DEVICE	ID	PROTOCOL	RATE
01	CAMERA	000	NORMAL	02400
02	PTZ	255	P-D	02400
03	CAMERA	000	NORMAL	02400
04	CAMERA	000	NORMAL	02400

The submenu items are described below:

1) TITLE

Show the camera title of each channel set in “CAMERA”.

2) DEVICE

Select the device type (CAMERA / PTZ) according to the connected camera for each channel.

3) ID

Set the ID number (0 ~ 255) for a PTZ camera.
After connecting to a PTZ camera correctly, the default ID of the PTZ camera will be shown on the screen.

4) PROTOCOL

Select NORMAL (our protocol) or P-D (PELCO-D) protocol.

5) RATE

Set the baud rate of each channel (2400 / 4800 / 9600 / 19200 / 57600). For the connected cameras, such as PTZ and speed dome cameras, etc., please make sure their baud rate setting is the same as the setting here.

Note: For detailed PTZ camera connection & setup, please refer to the section “3.2.2 PTZ” at page 8, and “6.6.5 PTZ Camera Setup and Control” at page 30.

6.4.6 System

In this menu list, you can check or change some system settings.
Move the cursor to “SYSTEM”, and press ”ENTER”. You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

SYSTEM	
SERIAL TYPE	RS-485
BAUD RATE	02400
HOST ID	001
IR	ON
PASSWORD	SETUP
RESET DEFAULT	RESET
CLEAR HDD	EXT 003
UPGRADE	NO
R.E.T.R. (MIN)	03
AUTO KEYLOCK	NEVER
LANGUAGE	ENGLISH
VERSION	1088-10-K2-04-AA-11
VIDEO FORMAT	NTSC

The submenu items are described below:

1) SERIAL TYPE

Press “ENTER” or “＋” / “－” button to set the serial type of the DVR (RS-485 / RS-232).

2) BAUD RATE

Press “ENTER” or “＋” / “－” button to set the baud rate of the DVR (2400 / 9600 / 19200 / 57600).

3) HOST ID

Press “ENTER” or “＋” / “－” button to set the ID of the DVR (0 ~ 255).

4) IR (For Model 4 & 5)

Press “ENTER” or “＋” / “－” button to enable or disable IR function (ON / OFF).

5) PASSWORD

Press “ENTER” to reset the password for accessing the DVR system (ADMIN PASSWORD or GUEST PASSWORD). You can set the password up to 4 digits.

Note: Users who use guest password to access the DVR will be only allowed to view the live streaming video and sequence display, shift the channel display, and lock keys.

6) RESET DEFAULT

Press “ENTER” to reset all settings as default, and select “YES” to confirm or “NO” to cancel.

7) CLEAR HDD

Press “ENTER”, and select “YES” to confirm to clear HDD or “NO” to cancel.

8) UPGRADE (This function is only for Model 1, 2, 4 and 5)

Press “ENTER”, and select “YES” to confirm upgrade or “NO” to cancel.

Note: To use this function, you need to have the upgrade file saved in a compatible USB flash drive, and insert it into the USB port at the front or rear panel.

9) R.E.T.R. (MIN) (For Model 5)

- **R.E.T.R. Activation**
  Press “MENU” + “－” buttons on the front panel to enable R.E.T.R. function 3 / 5 / 10 minutes later. A message “R.E.T.R. ON” will be shown on the screen (in white text), and after the RETR function is activated, the message “R.E.T.R.” shown on the screen will turn to red.
- **R.E.T.R. Off**
  Press any key (except “⏻” or “POWER”buttons) and enter the password to turn off the RETR function.

10) AUTO KEYLOCK

Set the time-out in second after which the key lock function is activated (Never / 10 / 30 / 60).

11) LANGUAGE (Support multi-language)

Press “ENTER” to select the language of the OSD.

12) VERSION

Here shows the firmware version information.

13) VIDEO FORMAT

Here shows the information of the DVR video format (NTSC / PAL).

6.4.7 Network

In this menu list, you can set up the network. For detailed network setup, please refer to the section “3.6 LAN or Internet Setup” at page 9.

Move the cursor to “NETWORK”, and press ”ENTER”. You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

NETWORK	
NETWORK TYPE	STATIC
DNS	168. 95. 1. 1
PORT	0080

The submenu items are described below:

1) NETWORK TYPE

There are 3 network types: STATIC, PPPOE and DHCP.

- STATIC

  Select NETWORK TYPE, press “＋” or “－” button to set the network type as STATIC, and then press “ENTER” to go to the submenu of the network. In the submenu of network type, use “＋” or “－” button to set all the information needed in the DVR. See the example below, and refer to the section “3.6.1 STATIC IP” at page 9 for details.

STATIC	
IP	160 . 121 . 346 . 236
GATEWAY	160 . 121 . 346 . 236
NETMASK	255 . 255 . 255 . 254

- PPPOE

  The DHCP function needs to be supported by a router or a cable modem network with DHCP services.

  For detailed DHCP settings, please follow the AP (Licensed Software AP) setup, and then refer to the section “3.6.3 Dynamic IP — PPPOE” at page 10, and “(1) DDNS” in section **“**7.5.1 Network” at page 37.

- DHCP

  This PPPoE function needs to have one “username” and one “password” subscribed from one ISP supplier.

  For detailed PPPoE settings, please follow the AP (Licensed Software AP) setup, and then refer to the section “3.6.4 Dynamic IP — DHCP” at page 11, and “(1) DDNS” in section **“**7.5.1 Network” at page 37.

Note: DHCP and PPPoE network types need to apply DDNS services to get “Hostname” to correspond to the dynamic IP address. For detailed DDNS settings, please refer to “(1) DDNS” in section “7.5.1 Network” at page 37.

---

2) DNS

Key in the IP address of the domain name server obtained from your ISP (Internet Service Provider).

3) PORT

The valid number ranges from 1 to 9999. The default value is 80.

Note: Typically, the TCP port used by HTTP is 80. However in some cases, it is better to change this port number for added flexibility or security.

6.4.8 Backup

The backup file can be played directly in your PC via the supplied licensed **software AP**, or via other **media players** (ex: Windows Media Player or RealPlayer) after the file is converted to "**AVI**" format. For detailed AP playback, please refer to the section "7.4 Playback Operation" at page 35.

Note: For model 3 & 4, you need to backup from network via supplied AP software.

Note: Before making a video backup with audio, you need to check whether there's any audio camera connected to the channels which support audio recording, and have recorded data for those channels.
For model 1, 2 & 5: Please choose CH1 and / or CH2 to backup video with audio.
For model 3 & 4: You need to backup from network side (via AP software). And please choose CH1 to backup video with audio.

Move the cursor to "BACKUP", and press "ENTER". You will see the following options:

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

BACKUP
USB BACKUP
DISK BACKUP

1) <u>USB BACKUP (USB backup function is only for Model 1, 2, 4 & 5)</u>

Before making USB backup, please check if:

a) The USB flash drive is supported by your DVR. If not, the message "USB ERROR" will be shown on the screen. For the list of the compatible USB flash drives, please refer to "APPENDIX 5 COMPATIBLE USB FLASH DRIVE BRAND" at page 55.

b) The format of your USB flash drive is "FAT 32". If no, please format it to "FAT 32" in your PC.

c) There is no data in the USB flash drive. If yes, it's recommended to clear all data in the USB flash drive before starting the backup.

Move the cursor to "BACKUP", and press "ENTER". You will see a similar screen as the following:

BACKUP
USB BACKUP
DISK BACKUP

USB BACKUP	
START TIME	2006 – 12 – 01 21 : 35 : 00
END TIME	2006 – 12 – 01 21 : 45 : 00
AVAILABLE SIZE	1.460 GB
CHANNEL	● 01 ● 02 X 03 X 04
HDD NUM	HDD-MASTER-1
BACKUP TO USB	START

The submenu items are described below:

- <u>START TIME</u>
  Select the start time of the backup.
- <u>END TIME</u>
  Select the end time of the backup.
- <u>AVAILABLE SIZE</u>
  Display the available capacity in the inserted USB flash drive.

- CHANNEL
  Select channels by pressing “ENTER” button to change the symbol in front of the channel number.
  Symbol “X” means that this channel is not selected to backup.
  Symbol “●” means that this channel is selected to backup.

- HDD NUM
  Press “ENTER” to select the HDD containing the data you need.

- BACKUP TO USB
  Press “ENTER” to start copying the chosen data to the USB flash drive.

2) DISK BACKUP (CD writer backup function is only for Model 1 & 5)

Before making disk backup, please check if the type of your CD is **CD-R**. The maximum number of backup files in the CD is 41.

Note: During the backup process, a file player will also be copied into your CD, and you will see a message “BACKUP PLAYER” shown on the screen.

Move the cursor to “BACKUP”, and press ”ENTER”. You will see a similar screen as the following:

BACKUP
USB BACKUP
DISK BACKUP

DISK BACKUP				
START TIME	2006 – 12 – 01	20 : 35 : 00		
END TIME	2006 – 12 – 01	23. : 35 : 00		
AVAILABLE SIZE	600 MB			
CHANNEL	● 01	● 02	X 03	X 04
HDD NUM	HDD-MASTER-1			
BACKUP TO DISK	START			

The submenu items and their functions are the same as USB BACKUP except for “BACK TO DISK” item.

The process below describes how to make a disk backup:

- Press “EJECT” button to open the disk tray. Put the CD into a CD-RW drive, and press “EJECT” button again to close the disk tray.
- Go to “DISK BACKUP” menu, and set the start time, end time, channels and HDD.
- Move the cursor to “BACKUP TO DISK”, and press “ENTER” to start backup.
  While CD backup is processing, users will see the backup completed percentage on the screen.

Note: During the backup process, a file player will also be copied into the CD, and you will see a message “BACKUP PLAYER” shown on the screen.

- After CD backup is completed, “DISK BURN FINISH” will be prompted on the screen. Press “EJECT” button to eject the CD tray and get the CD.
- Put the CD into the CD-ROM drive of your PC. Double click the file to convert it into “AVI” format. Play the converted file in your PC to see if the backup is successful.

Note: The supported PC operation systems are Windows 2000 and Windows XP.

6.4.9 HDD Info

In this menu list, you can view the remaining capacity of all the connected HDDs in this device.
Move the cursor to “HDD INFO”, and press ”ENTER”. You will see a similar screen as the following:

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

HDD INFO			
HDD NUM	HDD SIZE	HDD NUM	HDD SIZE
MASTER-1	368	SLAVE-1	NO HDD
MASTER-2	NO HDD	SLAVE-2	NO HDD
EXT-001	NO HDD	EXT-002	NO HDD
EXT-003	NO HDD	EXT-004	NO HDD
EXT-005	NO HDD	EXT-006	NO HDD
EXT-007	NO HDD	EXT-008	NO HDD
EXT-009	NO HDD	EXT-010	NO HDD

6.4.10 Event Log

In this menu list, you can view all the event information (event type, time and channel) or clear all log records.
Move the cursor to “EVENT LOG”, and press ”ENTER”. You will see the following options:

ADVANCE
CAMERA
DETECTION
DISPLAY
ALERT
REMOTE
SYSTEM
NETWORK
BACKUP
HDD INFO
EVENT LOG

EVENT LOG
VLOSS LIST
NET LIST
SYSTEM LOG
OTHERS
CLEAR ALL

The submenu items are described below:

1) VLOSS LIST

Show the information of the video loss time.

2) NET LIST

Show the information of the net login time.

3) SYSTEM LOG

Show the error codes for system errors.
For the meaning of each error code, please see “8.1 FAQ” in the section “8. TROUBLESHOOTING” at page 49.

4) OTHERS

Show the information of “power on / off”, “unlock” and “reset to default” time.

5) CLEAR ALL

Clear all event log lists.

6.5 Search

In this menu list, you can view the time for all the events recorded under different situations and play the file you want, or search any specific events by event or time and directly play the file you find.

Press “SEARCH” button on the front panel. You will see the following screen:

SEARCH
HDD-MASTER-1
FULL LIST
RECORD LIST
SYSTEM LIST
ALARM LIST
MOTION LIST
EVENT SEARCH
TIME SEARCH

The submenu items are described below:

1) HDD-MASTER-1

Press “ENTER” to change to the HDD you want if there are more than 1 HDD in your DVR.

2) FULL LIST

Show the time list for all types of the recorded files. The capital letters stand for the following:
R: RECORD / S: SYSTEM / A: ALARM / MS: MOTION / T: TIMER

3) RECORD LIST

List the time of manual-recorded files.

4) SYSTEM LIST

List the time of system-recorded files.
Under the manual recording mode, the DVR system will save one recorded file every one hour.

5) ALARM LIST

List the time of alarm-trigger-recorded files.

6) MOTION LIST

List the time of motion-trigger-recorded files.

7) EVENT SEARCH

Move the cursor to “EVENT SEARCH” and press ENTER button to search and directly playback the recorded files by the specific time period (YEAR / MONTH / DAY / HOUR / MIN), channel, HDD, and event type (motion / alarm triggered recording).

8) TIME SEARCH

Move the cursor to “TIME SEARCH” and press ENTER button to search the recorded files by the specific time period (YEAR / MONTH / DAY / HOUR / MIN).

Note: The file found will be played with the fast speed.

6.6 Additional Operation

6.6.1 Key Lock and Unlock

- Key Lock On: Press “MENU” + “ENTER” buttons on the DVR front panel to lock keys.
- AUTO KEYLOCK: Set the time-out after which the key lock function is activated (Never / 10 SEC / 30 SEC / 60 SEC). Please refer to section “6.4.6 System” at page 22.
- Key Lock Off: Enter the DVR password to exit “Key Lock” mode.

Note: For the password setting, please refer to the section “3.7 Password and User Name Setting” at page 11.

6.6.2 Switch NTSC / PAL System

- Switch to NTSC System (or POWER +):
  Press “POWER” button on the DVR front panel to shutdown. Then, press and hold “ “ first, and press “POWER” to switch to NTSC system. (Press the buttons until the monitor shows video images.)
- Switch to PAL System (or POWER +):
  Press “POWER” button on the DVR front panel to shutdown. Then, press and hold “ “ first, and press “POWER” to switch to PAL system. (Press the buttons until the monitor shows video images.)

Note: The DVR will automatically detect PAL/NTSC system. But you can also manually switch between PAL and NTSC systems.

6.6.3 Upgrade

(1) Firmware / Multilanguage OSD Upgrade

- Use USB to upgrade:
  Please format the USB memory device as FAT 32 format first. Get the upgrade files from your distributor. Save the upgrade files in your USB device (do not change the file name). Go to “MAIN MENU” → “SYSTEM” → “UPGRADE”, and press “ENTER” button. Select “YES”, and press “ENTER” button again to confirm upgrade. For detailed instructions, please refer to section “6.4.6 System” at page 22.
- Use AP software to remotely upgrade:
  In the login page of the AP software, enter the user name, password, IP address and port of the DVR. Then, press “ ” button to upgrade DVR firmware or OSD language files. The provided firmware and OSD files should be saved at PC first.

(2) AP and JAVA Software Upgrade

- Type the IP address where your DVR is located into the URL address box, and press “Enter” to login the AP.
- For detailed description, please refer to section “7.6 Operation via IE Browser” at page 48.

6.6.4 Audio Backup and Playback

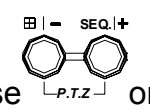
If you want to backup images with audio, please connect the cameras to the correct channels. For model 1,2 & 5, the audio channels are CH1 – CH2. For model 3 & 4, the audio channels are CH1.

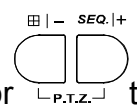
Note: For detailed camera connection, please refer to section “3.2 Camera Connection” at page 8.
For detailed backup instruction, please refer to section “6.4.8 Backup” at page 25.

To select live or playback sounds of the 2 audio channels, please press these two buttons SLOW ZOOM AUDIO or SLOW ZOOM AUDIO on the DVR front panel at the same time. For detailed playback instructions, please refer to section “4.2 Playback” at page 14. For detailed playback instructions on the remote PC side, please refer to section “7.4 Playback Operation” at page 35.

6.6.5 PTZ Camera Setup and Control

- PTZ connection: Please refer to section “3.2.2 PTZ” at page 8.
- PTZ ID, protocol, baud rate setting at the DVR side: Please refer to section “6.4.5 Remote” at page 22.
- PTZ ID, protocol, baud rate setting at the remote AP software side:
  Please refer to section “(1) Device” at page 39 (AP software system configuration).
- PTZ control at DVR side:

  Press these 

or 

two buttons on the DVR front panel at the same time to enter / exit the PTZ control mode.

  In the PTZ control mode, press "＋" button to zoom in, press "－" button to zoom out, and press "UP”, “DOWN”, “LEFT” or “RIGHT" buttons on the DVR front panel to adjust the PTZ angle.
- PTZ control at AP software side: Please refer to section “7.3.2 PTZ Camera Control Panel” at page 34.

6.6.6 R.E.T.R. Setup (For Model 5 only)

Before activating the R.E.T.R. function, please set the motion detection area first.

(1) Setup Motion Detection Function:
Activate motion detection function and setup the motion detection area and sensitivity. Please refer to section “6.4.2 Detection” at page 18, or section “(2) Detection” at page 40 (AP software system configuration).

(2) Activate the R.E.T.R. Function:
- From DVR front panel:
  Press ”Menu” and “－” buttons on the DVR front panel at the same time. R.E.T.R. function will be activated 3 / 5 / 10 minutes later. For detailed instructions, please refer to section “6.4.6 System”. A message “R.E.T.R. ON” will be shown on the screen (in white text), and after the RETR function is activated, the message “R.E.T.R.” shown on the screen will turn to red.
- From AP software at remote PC/NB side:
  Press “R.E.T.R.” button on the AP control panel to activate the R.E.T.R. function immediately. Please refer to section “7.3.1 DVR Control Panel”.
- From IR transmitter:
  Press “R.E.T.R.” or “F3” button on the IR remote control to activate the R.E.T.R. function for 3 / 5 / 10 minutes later. Please refer to the IR transmitter manual.

(3) Turn off the R.E.T.R. Function:
- From DVR front panel:

  Press any key (except “⏻” or “POWER” button) and enter the password to turn off the RETR function.
- From AP software at remote PC/NB side:
  Press “R.E.T.R.” button on the AP control panel again to turn off the R.E.T.R. function.
- From IR transmitter:
  Press any key (except “POWER” button) and enter the password to turn off the RETR function.

7. LICENSED SOFTWARE AP

7.1 Installation

1) Install the software:

Place the attached licensed software AP disk into the CD-ROM drive, and install the application programs into your PC (Including AP and JAVA programs). After setup, users will see an AP shortcut icon on the desktop.

For the latest software AP, please check with your distributor, or download from the Internet. Please refer to section "(2) AP and JAVA Software Upgrade" at page 29, or section "7.6 Operation via IE Browser" at page 48.

2) Local Network Connection:

Connect your DVR to PC via RJ45 network line. The default DVR IP is "192.168.1.10", and default user name and password are both "admin". Users should set PC's IP address as "192.168.1.XXX " (1~255, except 10) in order to make the PC and DVR under the same domain.

Double click " " to enter the login page. Key in default IP address (192.168.1.10), username (admin), password (admin) and port (80) in the login page.

3) Network Setting

After connecting to the DVR with local LAN, you can modify the network settings in the DVR or in "SYSTEM CONFIG" menu of the software AP.

For the static IP network type, please refer to section "3.6.1 STATIC IP" at page 9. For the dynamic IP network type (PPPOE or DHCP), please refer to section "3.6.3 Dynamic IP — PPPOE" at page 10 and section "3.6.4 Dynamic IP — DHCP" at page 11. For detailed DDNS apply, please refer to section "3.6.2 DDNS Apply" at page 10.

4) User Name and Password Setting:

For detailed user name and password setting, please refer to section "3.7.2 Remote Login Password and User Name Setting" at page 12.

7.2 Login Panel

After setting up the network information, remote login user name and password, double click " " on the desktop to enter the software AP login page, and key in "Username", "Password", "IP" (IP address for static IP or host name for dynamic IP) as well as "Port". Then, click the green button to connect to the DVR.

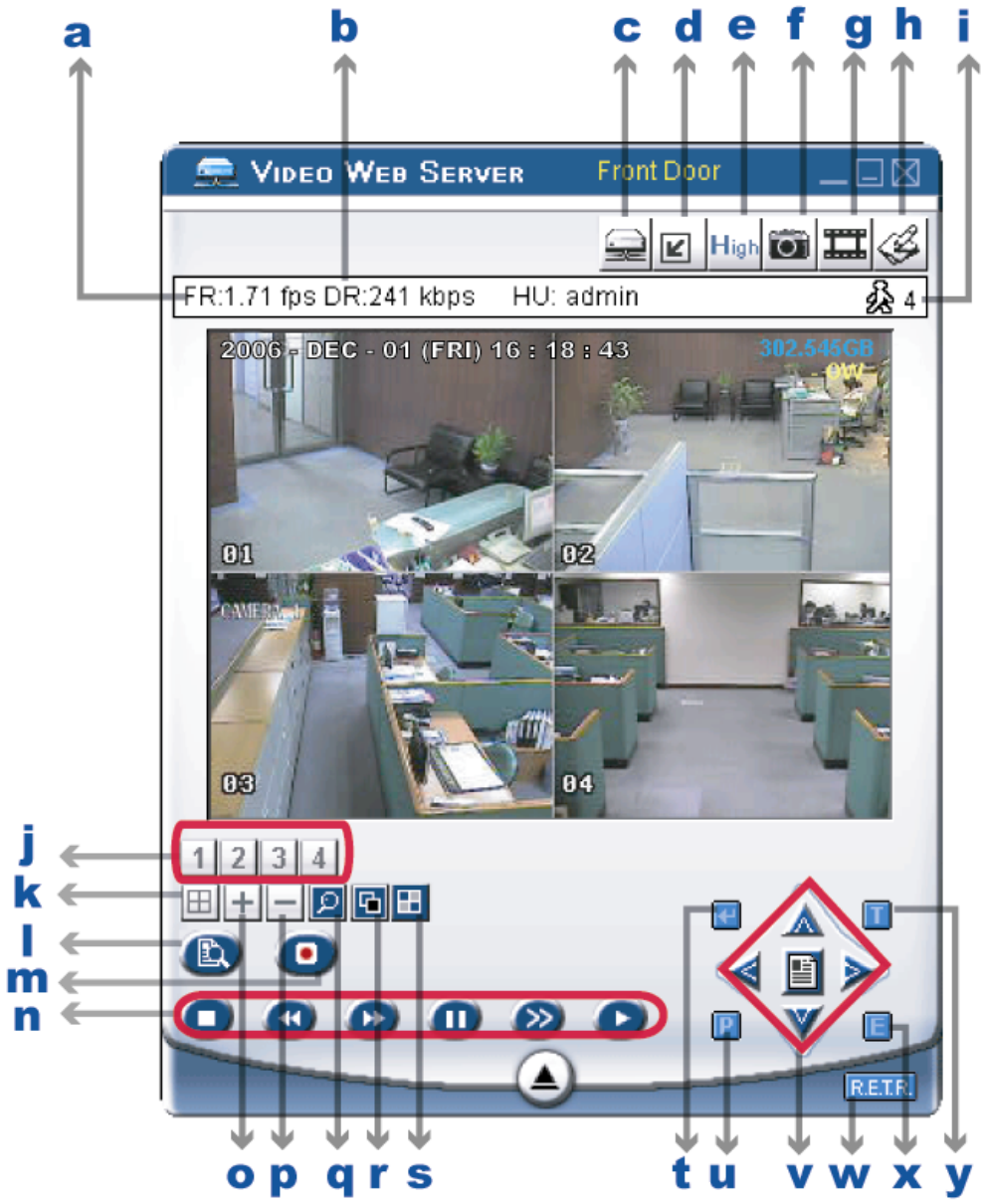
The AP login icon explanations are as following:

ICON	EXPLANATION	ICON	EXPLANATION
Address Book	Press this button to add a new IP address into the IP address book, or choose any preset IP address to access the software AP software.	Copy	Press this button to copy all the software installation files, so users can keep all the settings of the video web server for next software installation on other PCs.
Search	Search available DVR IP addresses in the local area network and modify the network setting of the DVR.	Upgrade Firmware	Press this button to upgrade DVR firmware or OSD language files. The provided firmware and OSD files should be saved at PC first.
Player	Press this button to access and play the latest recorded file that are saved in your PC.		

Note: The version of the licensed software AP will be shown on the login page.

7.3 Control Panel

7.3.1 DVR Control Panel



a. Data Transfer Rate

b. Image Transfer Rate Per Second

c. Connect / Disconnect

d. Resolution:

NTSC: 320 × 228; 640 × 450; PAL: 320 × 276; 640 × 552

e. Image Quality (High , Medium , Low)

f. Snapshot :

Press this button to take a snapshot of the image which will be saved in the specified destination set in “SYSTEM CONFIG” → “FILE PATH” → “Snapshot Path”.

g. Record :

Press this button to start recording, and press this button again to stop recording. The recorded files will be saved to the specified path on the PC. Each recorded file can be up to 18,000 frames. When the recorded file is full, a new-recorded file will be saved as the second file. If the HDD space is less than 200MB, the program will stop recording.

h. System Config : Press this button to enter the setting page of the licensed software AP.

i. Number of Online Users

j. CH 1 ~ 4

k. 4 Channel Display

l. Search : Press this button to enter the DVR search menu.

m. Record

n. Stop / Fast Rewind / Fast Forward / Pause / Slow Playback / Play

o. ＋

p. －

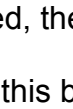
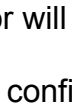
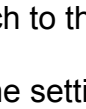
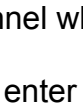
q. Digital Zoom : Digital zoom in/out

r. Set :
Press this button to change the position of the channel display.
Press “UP”, “DOWN”, “LEFT”, “RIGHT” buttons to select the channel you would like to change.
Press “＋” or “－” select the channel you would like to show.
Press “Enter ” button to confirm the setting.

s. Sequence :
Press this button to enter the call monitor function, and press again to exit from the call monitor mode. When any motion is detected, the monitor will switch to the channel which is motion-triggered.

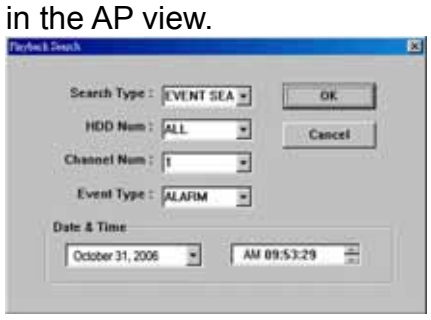
t. Enter : Press this button to confirm the settings or enter your selection.

u. PTZ Control On / Off:
When the PTZ control is turned on, users could select the PTZ device, and press “OK” button to enter the PTZ control AP screen. (Press “ESC” to exit from the PTZ control AP screen and return to the DVR control AP screen)

v. Menu / Up  / Down  / Left  / Right  :
Press button to enter the PTZ menu / to confirm the selection and return to the upper menu / exit the menu mode.
Press buttons to move the cursor and make the selection.

w. R.E.T.R. (Remote Event Trigger Recording) **(For Model 5 only)**:
Press this button to activate the R.E.T.R function, and press again to exit. When R.E.T.R. is on, users at the remote PC side will get a real-time alarm sound notification, and the recorded files will be saved to the specified path on the PC.

x. Search DVR Video Data :
Press this button to show the following window and set data search criteria. The video data found will be played in the AP view.



y. Turbo ON/ OFF :
To speed up menu selection or the control of the PTZ camera under the software AP, users can activate TURBO function by clicking this button. Users are allowed to change the turbo steps from 1 to 30.
Ex: If users activate TURBO function and set the value of the turbo step as 3, one mouse-click will function as clicking 3 times when users press one of the button up/down/left/right.

7.3.2 PTZ Camera Control Panel

a ~ k: Same as the DVR control panel a ~ k.

l. Preset 1 ~ 16 :
A preset position is a pre-defined camera view that can quickly and easily been viewed.

m. AUTO :
Press this button to enter the auto pan or sequence mode (depend on the setting in the PTZ menu). In the auto pan mode, the Live View page will rotate through the selected preset positions, in a set order or in sequence. In the sequence mode, the Live View page will automatically display the view from preset positions in a set order at set intervals.

n. Zoom Tele Zoom Wide

o. Focus Near Focus Far

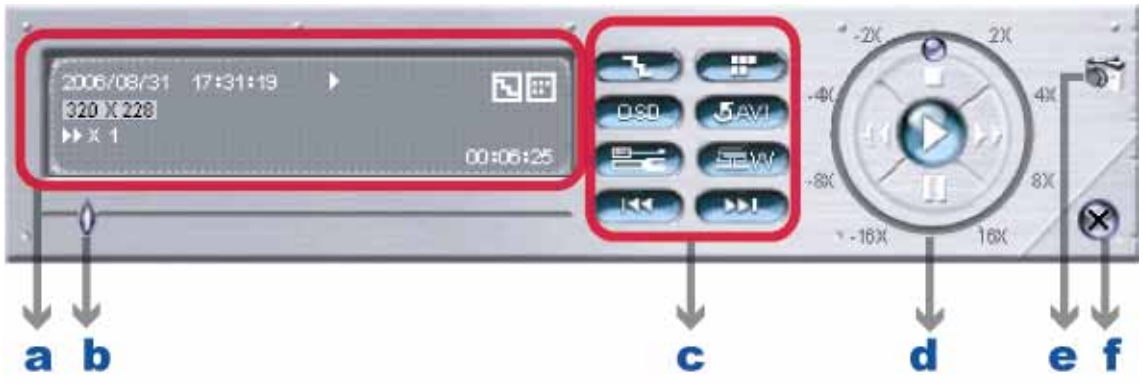
p. Continuously Zoom In Continuously Zoom Out

q. Enter : Press this button to confirm the settings or enter your selection.

r. Menu / Up / Down / Left / Right :
Press button to enter the PTZ menu / to confirm the selection and return the upper menu / exit the menu mode.
Press buttons to move the cursor and make the selection.

s. Turbo ON/ OFF :
To speed up menu selection or the control of the PTZ camera under software AP, users can activate TURBO function by clicking this button. Users are allowed to change the turbo steps from 1 to 30.
Ex: If users activate TURBO function and set the value of the turbo step as 3, one mouse-click will function as clicking 3 times then when users press one of the button up/down/left/right.

7.4 Playback Operation



7.4.1 AP Playback Functions:

a. Playback Information:
Display the information, such as “Date”, “Time”, “Resolution”, “ Rewind / Forward Speed”, “Status” and “Functions”, etc.

b. Time Progress Bar: Show the playback progress status.

c. Functions:

- De-interlace : Reduce the vibration of the paused picture.
- De-blocking : Reduce the video mosaic phenomenon.
- OSD : Display the OSD of the AP playback window.
- AVI convertion : Convert the entire recorded file to AVI format.
- Config. Setting :
  Enter AP configuration setting box, and set the file path, text color, and text color of progress status.
  * Mute: Play the video only (without audio).
  * AV sync. : Play with the audio and video synchronously.

- Watermark : Proof the authenticity of the backup video.
  In the playback mode of the software AP, you can press this button to check the authenticity of the BACKUP VIDEO. If the BACKUP VIDEO had been altered, the video image will turn to light red and the playback will be paused.
- Open Previous File : Open the previous backup video.
  When users pause the playback, press this button to go to the previous frame.
- Open Next File : Open the next backup video.
  When users pause the playback, press this button to go to the next frame.

d. Playback Control Buttons: Play / Stop / Pause / Fast Rewind / Fast Forward

e. Snapshot :
Press this button to take a snapshot of the current image which will be saved in the specified destination.

f. Close the Player

Note: When users use remote AP manual recording, the watermark function is not supported.

7.4.2 Convert the recorded file to AVI format

The backup file can be played directly in your PC via the supplied licensed software AP, or via other media players (Ex: Windows Media Player or RealPlayer) after the file is converted to “AVI” format.

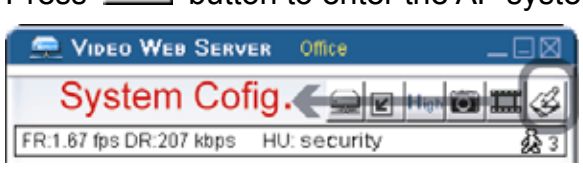
To convert the entire recorded file to AVI format, press

button.

To snap a video clip, right-click the mouse to set a starting point (▲ red) and click one more time to set an ending point (▲ green). Then, right-click the mouse to convert to AVI format.

7.5 System Configuration

Press button to enter the AP system setting page.



7.5.1 Network

The network configuration allows the DVR to connect to an LAN or Internet.
PPPoE and DHCP network connection types are required to apply a DDNS service to get a “Hostname” to correspond to a dynamic IP address. Please refer to section “3.6.2 DDNS Apply” at page 10 for details.

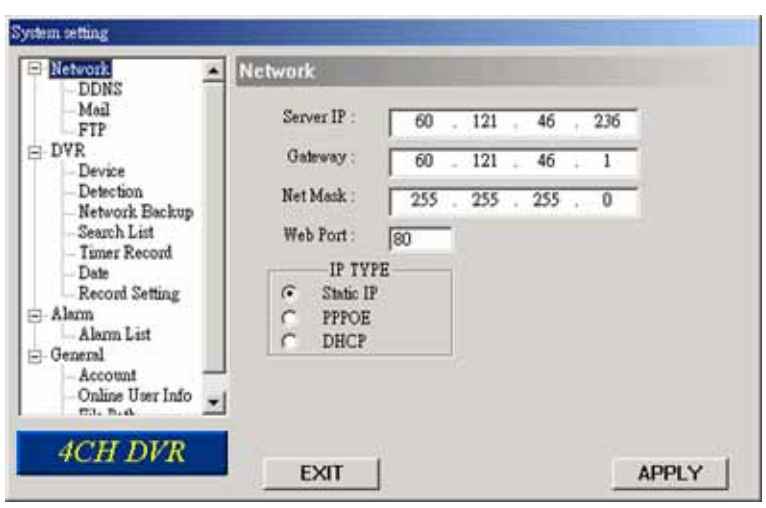
- **Web Port:**

The DVR can be viewed over the network with the licensed software AP or the IE web browser. Typically, the default TCP port used by HTTP is 80. However in some cases, it is better to change this port number for added flexibility or security. The valid web port number ranges from 1 to 9999.

- **Static IP:**

Computers are communicated and recognized by their own unique IP addresses over the Internet. “Static IP” provided by your ISP (Internet Service Provider) means the IP address of the computer is fixed.

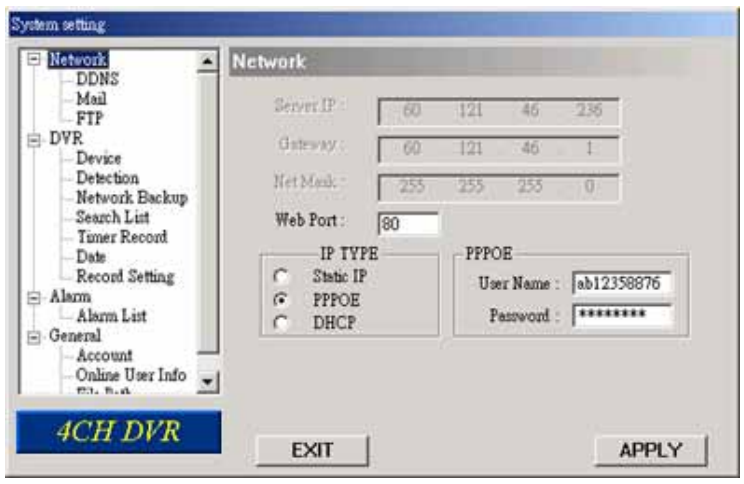
In this “Network” menu, choose “Static IP”, and enter the “Server IP”, “Gateway”, “Net Mask” and “Web Port”. Then, press “APPLY” button to confirm.



- **PPPOE**

PPPOE stands for Point-to-Point Protocol over Ethernet. Users can easily have Internet services as long as they're ready for the following things: 1) Insert an Ethernet card into the PC. 2) Obtain ADSL service via any ISP. 3) Obtain and install PPPoE software CD.

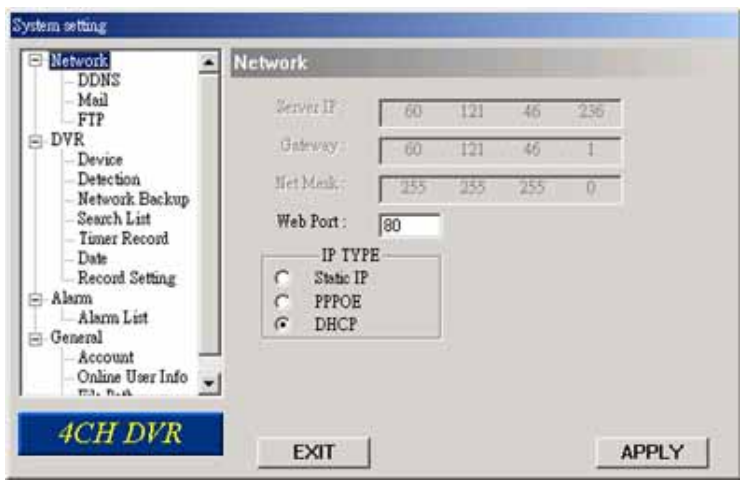
In this "Network" menu, choose "PPPOE" and enter the "User Name", "Password" provided by your ISP (Internet Service Provider) and "Web Port". Then, select "Network" → "DDNS" to set DDNS settings (see "(1) DDNS" at page 37 for details). When all the settings are completed, press "APPLY".



- **`DHCP:**

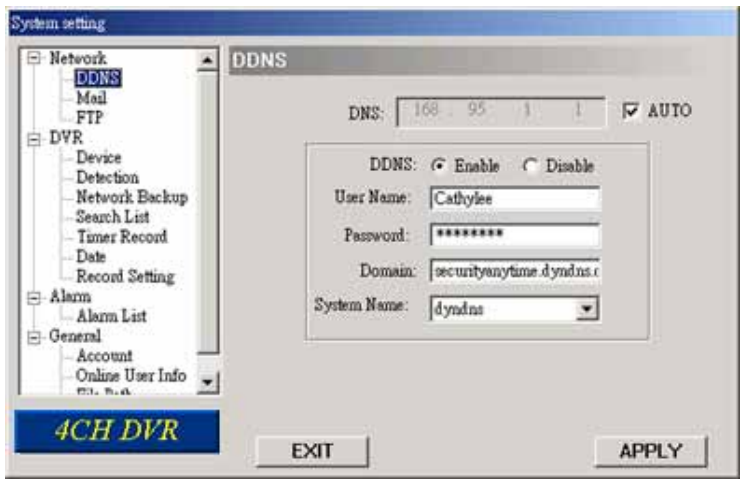
This DHCP function needs to be supported by a router or cable modem network with DHCP services. Choose "DHCP" IP type. Then, select "Network" → "DDNS" to set DDNS settings (see "(1) DDNS" at page 37 for details). When all the settings are completed, press "APPLY".

Note: Some router brands may need to restart the DVR to get the IP address.



(1) DDNS

You need to apply a DDNS account before setting PPPoE or DHCP connection. DDNS is a service for transforming the dynamic IP corresponding to a specific "Hostname". Go to a website which provide free DDNS services and apply a "Hostname". For DDNS setup, please refer to the section "(1) DDNS" at page 37.



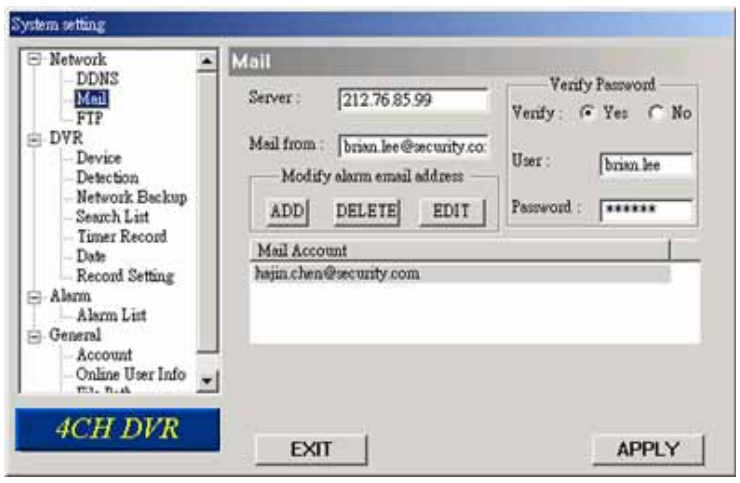
- Enable DDNS Function:

  a. DDNS: Choose “Enable”.
  b. User Name: Type your DDNS account.
  c. Password: Type your DDNS password.
  d. Domain: Type the “Host Name” you applied previously (EX: securityanytime.dyndns.org).
  e. System Name: Choose the DDNS server where you applied the domain name (EX: dyndns).
  f. Auto: If you select “DHCP” option in “Network” menu, then “AUTO” option will be shown in this menu.
  g. You can check the “AUTO” option to automatically assign the IP address.

(2) Mail

If the e-mail notification function is activated, the DVR will send an e-mail notification to the specified recipients once alarm-trigger or motion-trigger recording happened. Please enable the function of e-mail notification in the “Alarm” menu first.

Note: Users can assign up to 4 mail accounts for E-mail notification.



- Mail Notification Function:

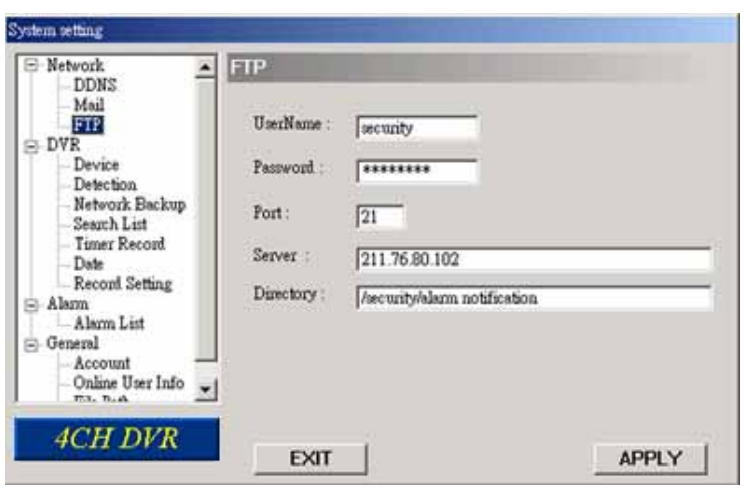
  a. Add the recipients’ E-mail accounts in “Mail Account” column.
  Please type the entire E-mail address in the “Mail from” column to ensure E-mails will not be blocked by SMTP.
  For detailed information (SMTP server, username and password), please check with your E-mail service supplier.

  b. Some mail servers are required to verify the password. Please enter the “user name” and “password”.

  c. After finishing the setting, press “APPLY” to confirm.

(3) FTP

If the FTP notification function is activated, the DVR will upload the captured images to the specified FTP site once alarm-trigger or motion-trigger recording happened. Please enable the function of FTP notification in the “Alarm” menu first.

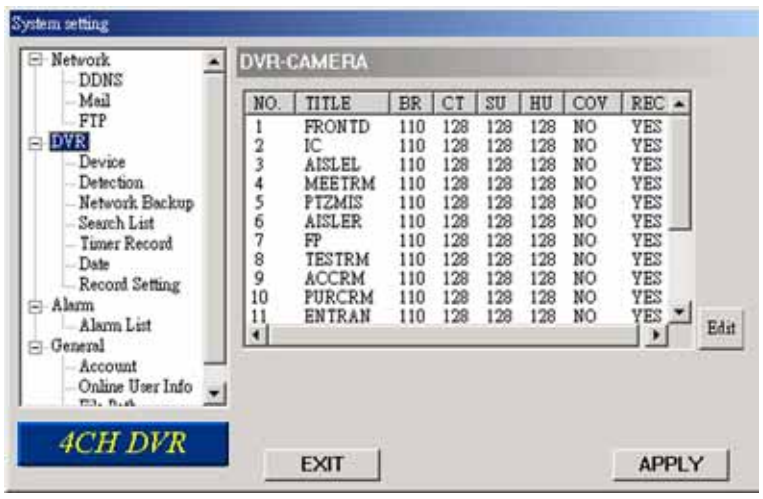


- FTP Notification Function:

  a. Enter the detailed FTP information.
  b. After finishing the setting, press “APPLY” to confirm.

7.5.2 DVR

Each camera channel can be adjusted independently. Select the desired camera channel and press “Edit” to enter the setting box.



- DVR-Camera Function:

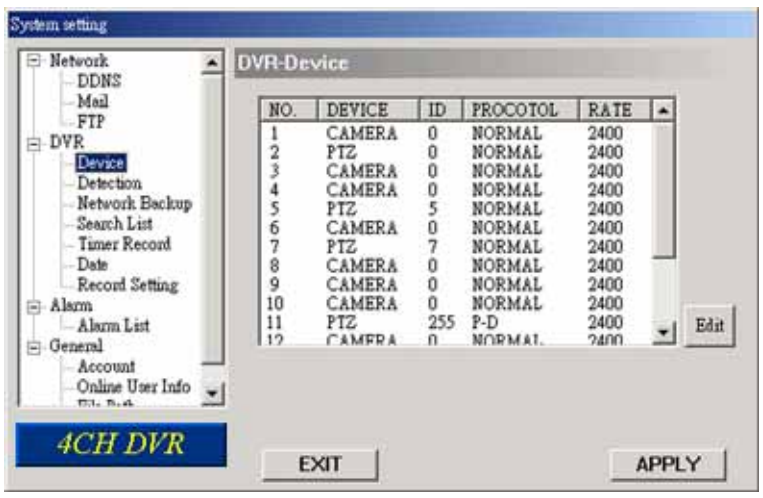
  a. Title: Enter the camera channel name up to 6 characters.

  b. Adjustment: Adjust the BR (brightness) / CT (contrast) / ST (saturation) / HUE / COV / REC values of a camera.

  c. After setting, press “OK” and then press “APPLY” button to confirm.

(1) Device

Select the device type (CAMERA / PTZ) according to the connected cameras for each channel. Press “Edit” to enter the setting box.



- The submenu items are described below:

  a. Device Type: Choose either normal camera or PTZ camera.

  b. ID No.: Set the ID number (0 ~ 255) of the installed external PTZ device.

  c. Protocol Type: Choose “NORMAL” protocol for our own brand camera. Choose “P-D” protocol for PELCO-D protocol camera.

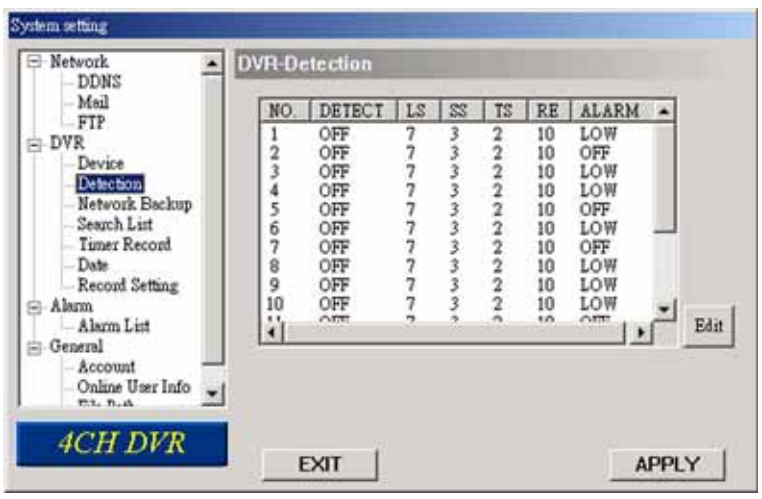
  d. Baud Rate: Set the baud rate of each channel (2400, 4800, 9600, 19200, 38400, 57600, 115200).

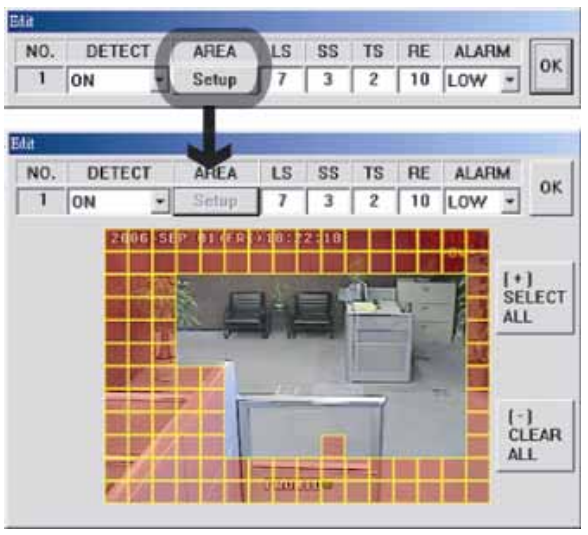
  e. After setting, press “OK” and then press “APPLY” button to confirm.

Note: This function can also be setup at the DVR side, please refer to section “6.4.5 Remote” at page 22.

(2) Detection

Select the desired channel, and press “Edit” button to enter the motion detection sensitivity and area-setting page.




Edit
NO. DETECT AREA LS SS TS RE ALARM
1 ON Setup 7 3 2 10 LOW
OK
Edit
NO. DETECT AREA LS SS TS RE ALARM
1 ON Setup 7 3 2 10 LOW
OK
[+] SELECT ALL
[-] CLEAR ALL

- The submenu items are described below:

a. DETECT (motion diction):
Select motion detection function ON / OFF.

b. AREA (motion detection area):
Set the motion detection area by selecting the area grids with your mouse. Pink blocks represent the area that is not being detected while the transparent blocks are the area under detection.
Press “－” to set the whole area under detection.
Press “＋” to set the whole area undetected.

b. Motion Detection Sensitivity:
Set the detection sensitivity in 4 different adjustable factors (LS / SS / TS / RD).

c. Alarm:
Select LOW / HIGH for the alarm polarity.

d. After setting, press “OK” and then press “APPLY” button to confirm.

Note: This function can also be setup at the DVR side. Please refer to section “6.4.2 Detection” at page 18.

(3) Network Backup

You can backup the recorded data from the DVR directly to your PC and CD via the network. The backup file can be played directly in your PC via the supplied licensed AP, or via other media players (Ex: Windows Media Player or RealPlayer) after the file is converted to “AVI” format.

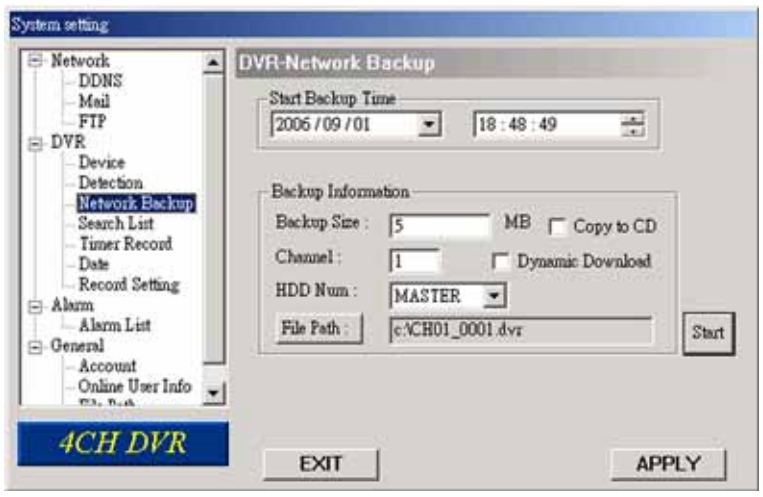
- **Enter the backup information:**

If you want to make a backup to a CD, please check “Copy to CD”.
If you want to view the backup image while the backup is processing, please check “Dynamic Download”.
After entering the backup information, press "Start" button to proceed the backup process.

Note: For CD backup, please install “NERO” CD burning program to your PC first.

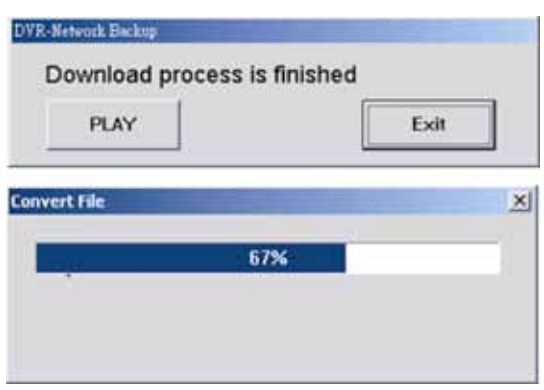
Note: During the file backup process, users can still see the live image at the same time. And the maximum size per file for Network Backup is 500MB.

- **Making backup to your PC:**



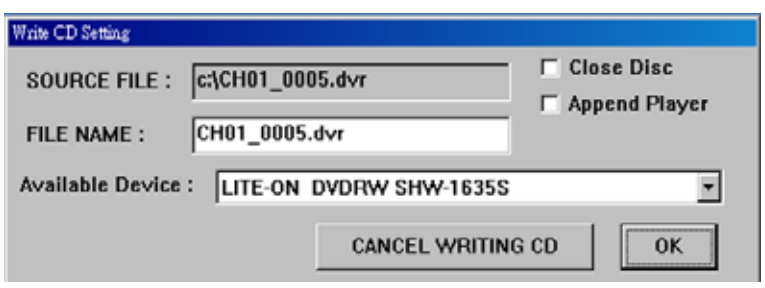
After pressing “Start”, the backup will be proceeded and a status bar will be displayed. “DVR Network Backup” pop-up window will show the message “Download process is finished” when the backup is succeeded.

Press “PLAY” button to directly convert and play the file, or “Exit” to quit.



- **Making backup to a CD:**

After pressing “Start”, “Write CD Setting” pop-up window will show on the screen. Choose “Close Disc” when you don’t want to write any more data to this CD after this burning; choose “Append Player” when you want to play the backup file on another PC which doesn’t have any available player to play it.

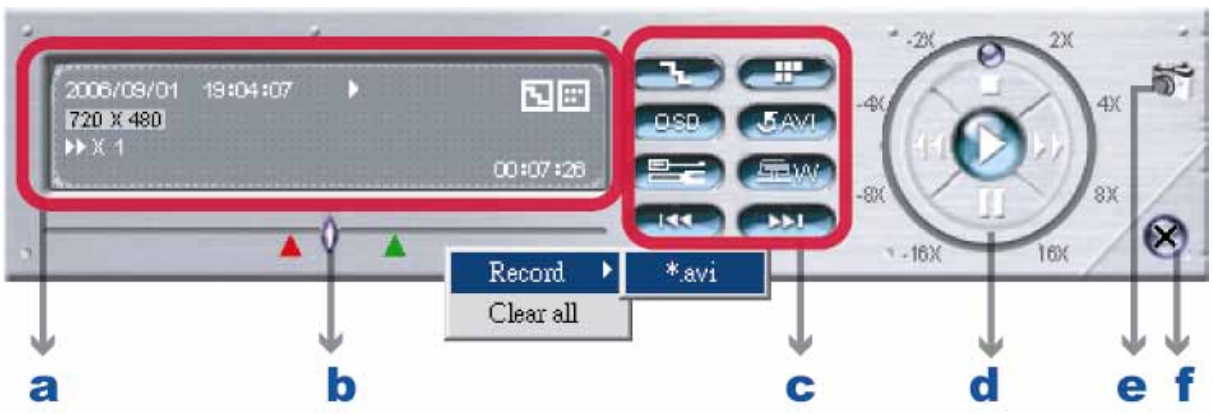


Press “OK” to start making a CD backup, or press “CANCEL WRITING CD” to only make a backup file to your PC.

When CD writing is processing, “DVR-Network Backup” window will show the message “Writing cd …” and a status bar will show the writing status.

When CD writing is completed, the CD will be ejected, and “DVR Network Backup” pop-up window will show the message “Download process is finished”. Press “PLAY” button to directly convert and play the file, or “Exit” to quit.

- **The playback operation are described below:**



a. Time Progress Bar

b. Playback Information

c. Functions:

(1) De-interlace (2) De-blocking (3) OSD (4) AVI Conversion

(5) Config. Setting (6) Watermark (7) Open Previous (8) Open Next File

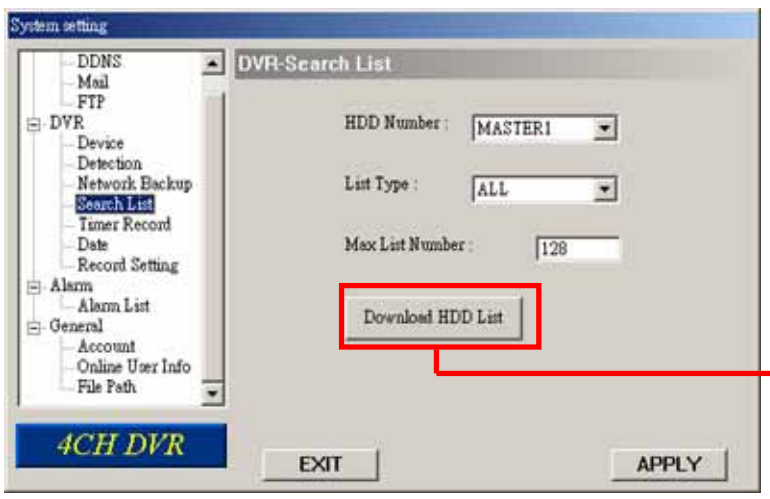
d. Playback Control Buttons: Play / Stop / Pause / Fast Rewind / Fast Forward

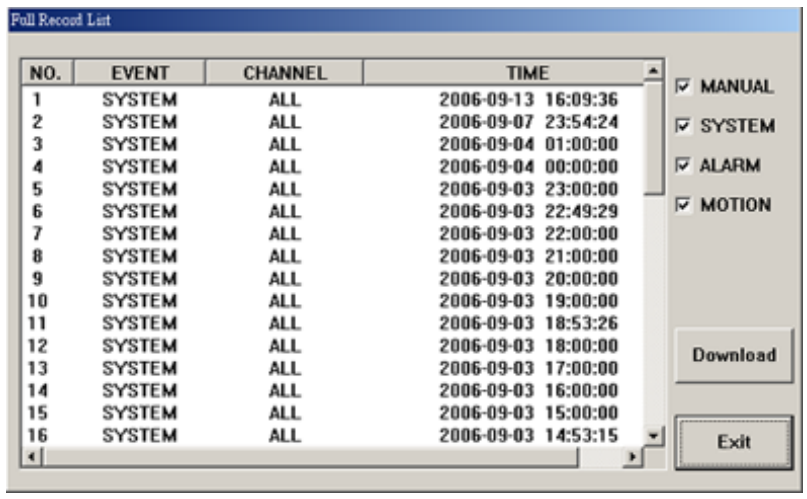
e. Snapshot f. Close the Player

For AP playback and AVI conversion details, please refer to section “7.4 Playback Operation” at page 35.

(4) Search List

In “DVR” → “Search List”, you can quickly search the event logs from 4 kinds of recording, and directly backup the event recording of the chosen event log.





- HDD Number
  Select the HDD from which you want to search recording data in the drop-down menu.

- List Type
  Select the event type you want to view from the drop-down menu: ALL / MANUAL / SYSTEM / ALARM / MOTION.

- Max List Number
  Set the maximum number of items in the search list.

- Download HDD List
  Press “Download HDD List’, and you will see a “Full Record List” shown on the screen.

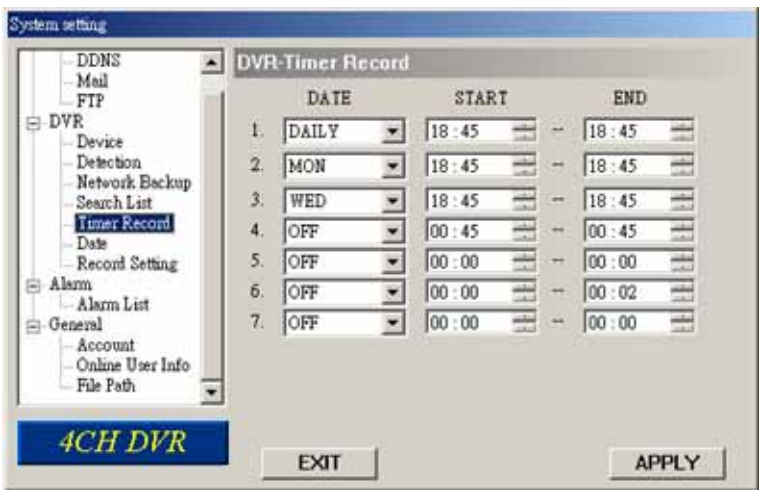
Highlight the event log you want, and press “Download” to directly go to “DVR-Network Backup” window for video backup. For the information of network backup, please refer to the section “(3) Network Backup” at page 40.

Tip: You can also quickly go to “DVR-Network Backup” window by double clicking the event log you want.

(5) Timer Record

In “DVR” → “Timer Record”, you can schedule up to 7 sets of time for recording.

Note: The same settings can also be made in the DVR. Refer to the section “6.2 Timer” at page 17 for details.



- DATE
  Choose a day from “DATE” dropdown menu. The options are OFF, SUN, MON, TUE, WED, THU, FRI, SAT, MON-FRI, SAT-SUN and DAILY.

- START
  Enter the start time of timer recording.

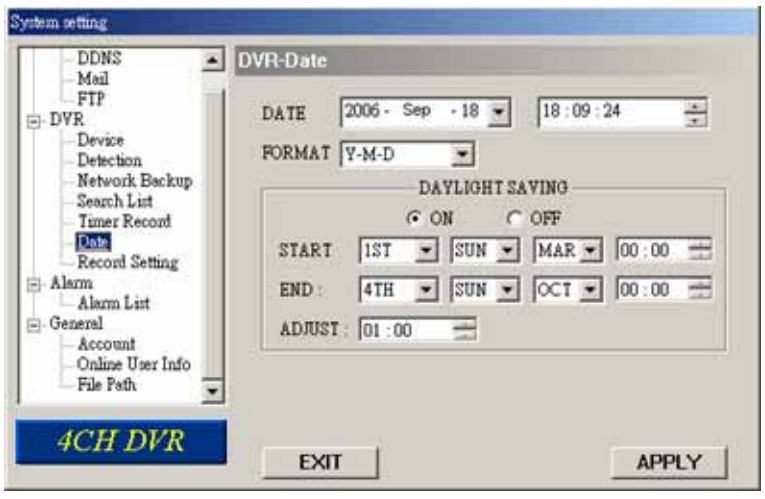
- END
  Enter the end time of timer recording.

Press “APPLY” to confirm the setup, or “EXIT” to quit without saving.

(6) Date

In “DVR” → “Date”, you can set the date for your DVR. Please DO NOT change the date or time when the recording function is activated. For details, please refer to the section “4.1 Recording” at page 13.

Note: The same settings can also be made in the DVR. Refer to the section “6.3 Date” at page 17 for details.



- DATE
  Choose the current date from “DATE” drop-down menu and enter the current time.
  When you click the drop-down menu, a calendar shown for you to set the current date.

- FORMAT
  Choose the format for date display from the three options: Y-M-D, D-M-Y and M-D-Y.

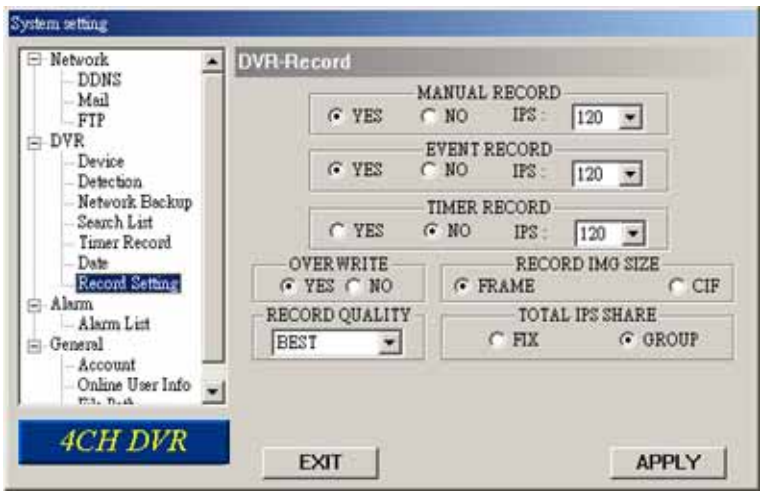
- DAYLIGHT SAVING
  Specify whether to use daylight saving time (ON / OFF) and time period (START / END), and adjust the daylight saving time in hour (ADJUST).

Press “APPLY” to confirm the setup, or “EXIT” to quit without saving.

(7) Record Setting

In “DVR” → “Record Setting”, you can set DVR record settings.

Note: The same settings can also be made in the DVR. Please refer to the section “6.1 Record” at page 16.



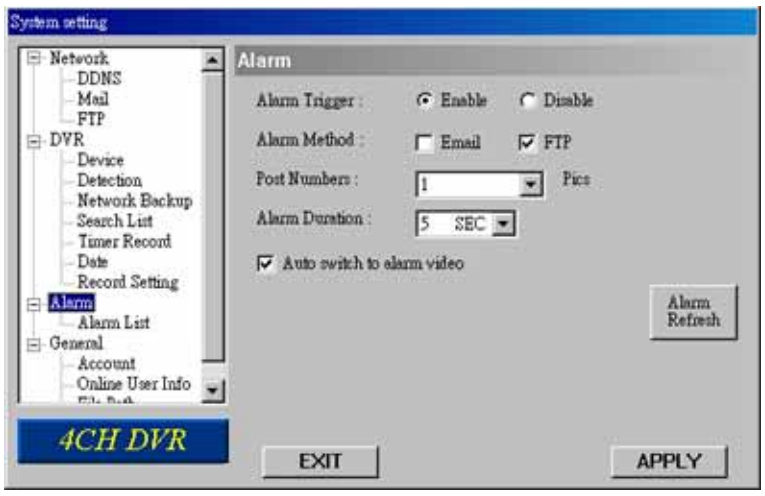
- MANUAL RECORD
  Specify whether to use manual recording (YES / ON), and set IPS number from the drop-down menu.
- EVENT RECORD
  Specify whether to user event recording (YES / ON), and set IPS number from the drop-down menu.
- TIMER RECORD
  Specify whether to user timer recording (YES / ON), and set IPS number from the drop-down menu.
- OVERWRITE
  Specify whether to overwrite the HDD capacity when the HDD is full (YES / NO).
- RECORD IMG SIZE
  Choose “FRAME” or “CIF”. This selection will affect the available IPS options of the recording modes described above.
- RECORD QUALITY
  4 options are available from the drop-down menu: BEST, HIGH, NORMAL and BASIC.
- TOTAL IPS SHARE
  Choose the total IPS share as FIX or GROUP.

Press “APPLY” to confirm the setup, or “EXIT” to quit without saving.

NOTE: For Model 3 & 4, the total IPS share is always “FIX”. Selecting “GROUP” here is useless.

7.5.3 Alarm

In “Alarm” and its sub-menu “Alarm List”, you can activate the alarm-trigger function, view the detailed information of alarm events, and play the event recording.



Press “Alarm”, and you will see the following options:

- Alarm Trigger
  Select to turn the alarm-trigger function on (Enable) or off (Disable).
- Alarm Method
  Select the notification methods when any alarm is triggered: Email and / or FTP.

  a) Email

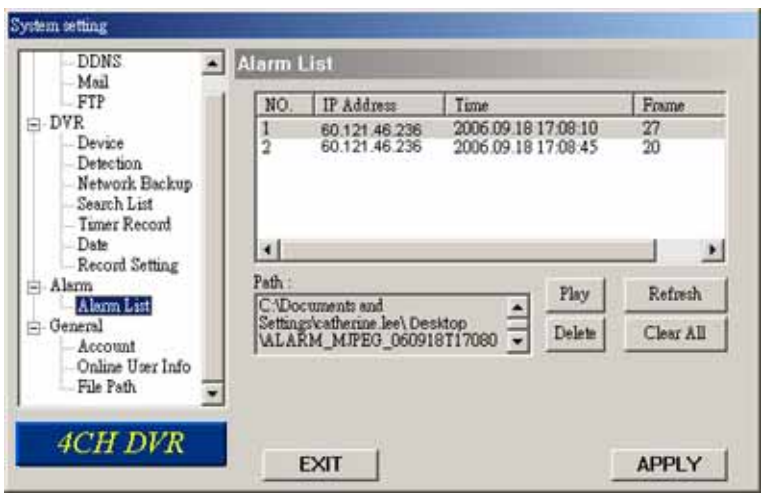
  When this option is checked, MJPEG pictures will be saved in the path assigned in “General” → “File Path” → “Snapshot Path” and a copy will also be emailed to the E-mail address assigned in “Network” → “Mail” if any alarm is triggered.

  b) FTP

  When this option is checked, MJPEG pictures will be saved in the path assigned in “General” → “File Path” → “Snapshot Path” and a copy will also be uploaded to the FTP address assigned in “Network” → “FTP” if any alarm is triggered.
- Post Numbers
  Set the number of MJPEG pictures (1-10) which will be sent with the chosen alarm method(s).
- Alarm Duration
  Set the duration time of motion trigger recording (5 SEC / 10 SEC / 20 SEC / 40 SEC).
- Auto switch to alarm video
  Check this option to immediately switch to the channel that an alarm event is triggered and see the live view.
- Alarm Refresh
  Press to clear the alarm icon “” shown on the screen.

(1) Alarm List (For Model 5 Only)

In “Alarm” → “Alarm List”, you can view the detailed information of alarm events (IP address, time & frame number), and see the following options:



- Path
  Display the location where all the alarm event data will be saved. This path is assigned in “General” → “File Path” → “Record Path”.
- Play
  Choose the event item you want to see, and press “Play” to view the event recording.
- Delete
  Choose the event item you want to remove, and press “Delete” to remove it.
- Refresh
  Press “Refresh” to update the alarm list.
- Clear All
  Press “Clear All” to remove all the alarm event items.

7.5.4 General

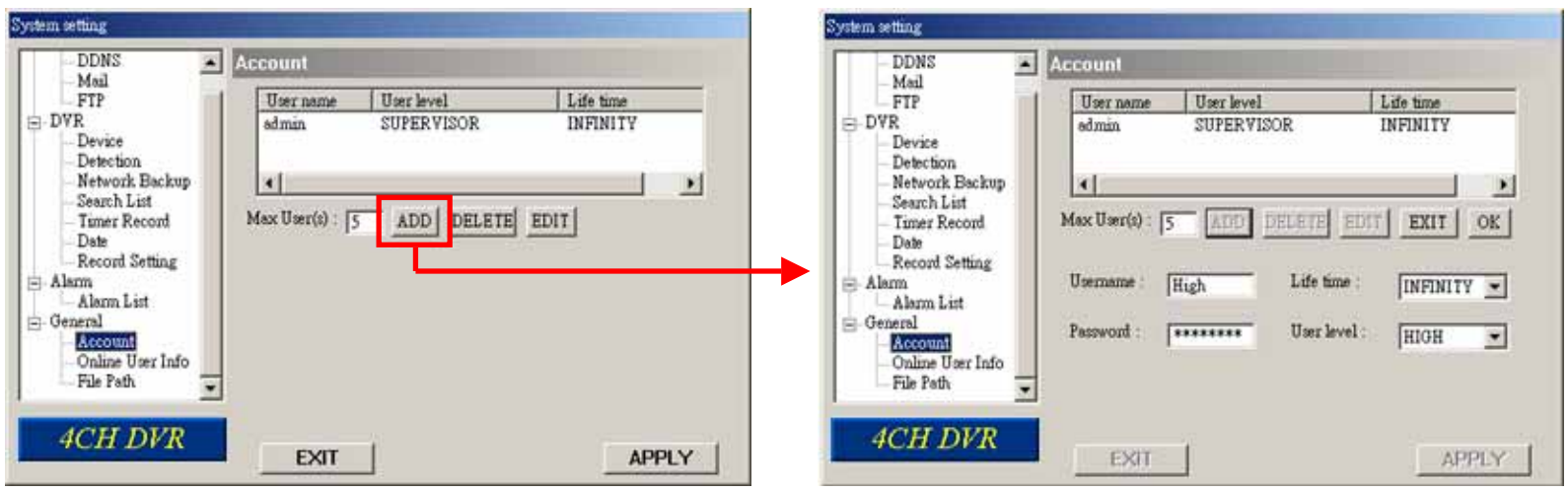
In “General” and its sub-menus, “Account”, “Online User Info” and “File Path”, you can view and set up some general information about this software and your DVR.

- Firmware Version
  Show the current DVR firmware version information.
- Turbo step
  To speed up menu selection or the control of the PTZ camera under AP operations, users can activate "Turbo" function by selecting from the drop-down menu. Users are allowed to change the turbo steps from 1 to 30.
  Example: If the value of the turbo step is set to "5", it means that when users press one of the button up/down/left/right, one click is as clicking 5 times.
- Mac address
  Show the information of the Mac address.
- MAX LOG LIST
  Set the maximum number of log list.
- Server Log
  Press “Server Log” button to enter the server log list window as following. You can filter log types you want to see by checking or unchecking the log types on the right side.
- Title
  Name the title which will be shown on the top of the AP live viewer (up to 8 characters).

(1) Account

In “General” → “Account”, you can view the current user account information, set the maximum user number, and add / delete / edit user accounts.

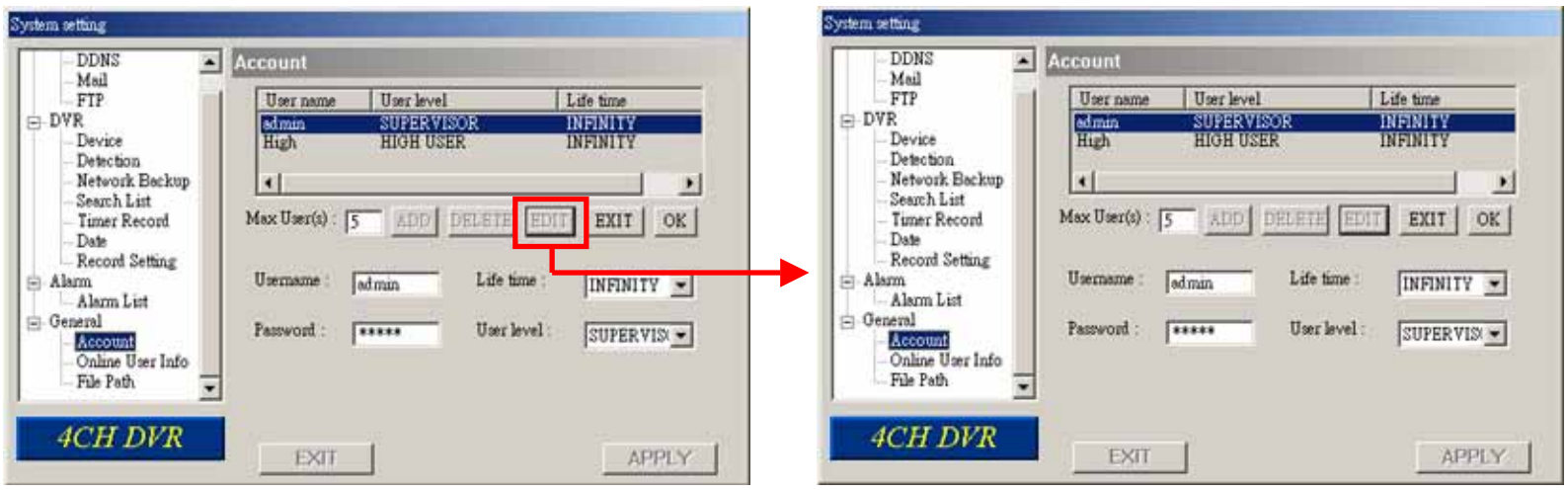
- To set the maximum user number, key in the number from 1 ~ 5 in “Max User(s)”.
- To create a new account, press “ADD”, and you will see the setting window as the following:
  To confirm account creation, press “OK”; to discard the creation, press “EXIT”.



Item	Description
Username	Set a user name what will be used at AP login page.
Password	Set a password what will be used at AP login page.
Life time	Select how long this account is allowed to stay online (1 Min / 5 Min / 10 Min / 1 Hour / 1 Day / INFINITY).
User level	Set the security level of an account. Each level has different permissions for the following functions: a b c d e f g **SUPERVISOR** – Control all the functions. **HIGH** – Control all the functions except “g”. **NORMAL** – Control only “a”, “e” and “f” functions. **GUEST** – Only “a” function can be used. This level is only allowed to watch the live view. For the function description, please refer to the section “7.3.1 DVR Control Panel” at page 32.

Note: If the number of current accounts already reaches the maximum number, you will not be able to create an account unless any account is removed.

- To edit an account, select one current account you want to modify, and press “EDIT”.

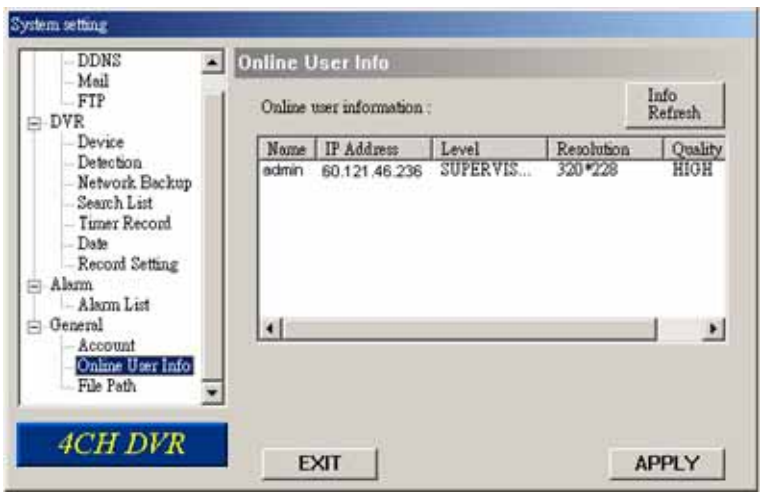


Modify the setting you want to change. To confirm the modification, press “OK”.

- To delete an account, select one current account you want to remove, and press “DELETE”. The selected account will be removed and this operation cannot be recovered.

(2) Online User Info

In “General” → “Online User Info”, you can view the current online user account information. This view can be updated by pressing “Info Refresh” button.



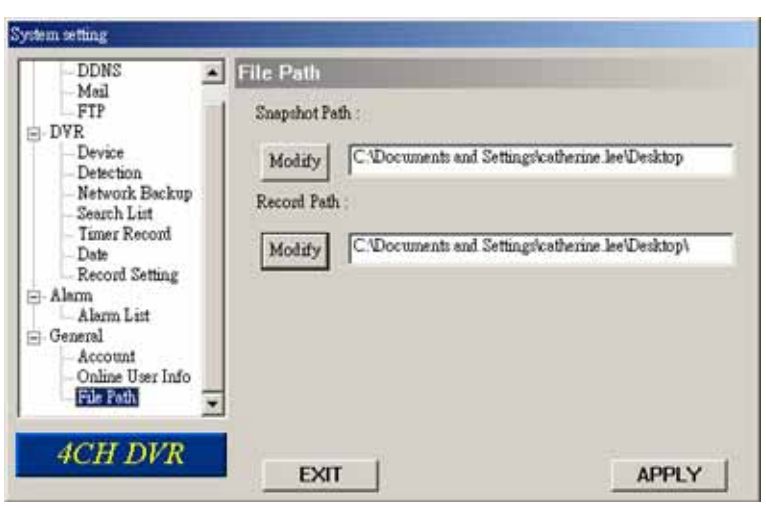
(3) File Path

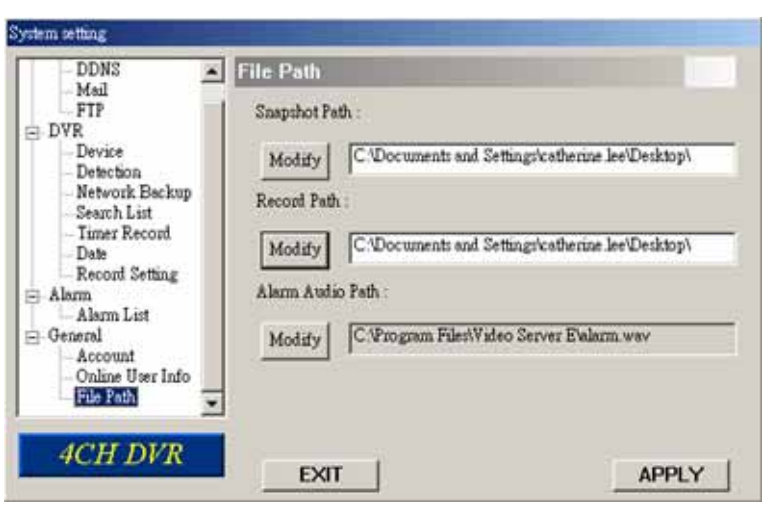
In “General” → “File Path”, you can view and change the file path for saving snapshots and recorded data, and customize the alarm audio file in “WMV” format. To change and customize the file path, press “Modify”.

Snapshot Path: Assign the route for saving the snapshot picture.

Record Path: Assign the route for saving the manually recorded file.

Alarm Audio Path (For Model 5): Customize the alarm audio file in “WMV” format.





7.6 Operation via IE Browser

You can view the images or operate your DVR with IE web browser. Please install the licensed software AP first.

Note: The supported PC operation systems are Windows 2000 and Windows XP.

Step 1: Key in the IP address used by your DVR in the URL address box, such as 60.121.46.236, and press Enter. You will see the following page.

If the port number your DVR used is **NOT** 80, you need to key in the port number additionally. The format is ***IP address*:*port num***, for example, IP address: 60.121.46.236, port number: 888, please key in "http://60.121.46.236:888" into the URL address box, and press "Enter".

Step 2: Check if you already installed the latest AP version. If no, please click "Download AP" and install the latest AP.

Step 3: Check if you already installed latest Java program. If no, click "Download Java" to connect to Sun Java official website and download the latest Java Runtime Environment (JRE) version.

a) Press "Download" to go to the download page.
b) Select "Accept License Agreement".
c) Choose offline installation or online installation, and follow the onscreen instructions.

Download (a)
Java Runtime Environment (JRE) 5.0 Update 10
» Download
The J2SE Runtime Environment (JRE) allows end-users to run Java applications.
Installation Instructions | ReadMe | ReleaseNotes | Sun License | Third Party Licenses
Accept License Agreement (b)
Windows Offline installation, Multi-language (c)

Step 4: Enter the user name and password, the same as the ones used at AP login. Press "Submit" when the user name and password are correct, or "Reset" to re-enter the user name and password. You will see a similar screen as the following when the login information is correct.

Image Position Setting:

Button	Position
LT	Upper Left
LD	Lower Left
Center	Center
RT	Upper Right
RD	Lower Right

All the buttons and their functions on the control panel are the same as the ones on AP control panel except for the buttons image position setting buttons. For the information of operation, please refer to the section "7.3 Control Panel" at page 32.

8. TROUBLESHOOTING

8.1 FAQ

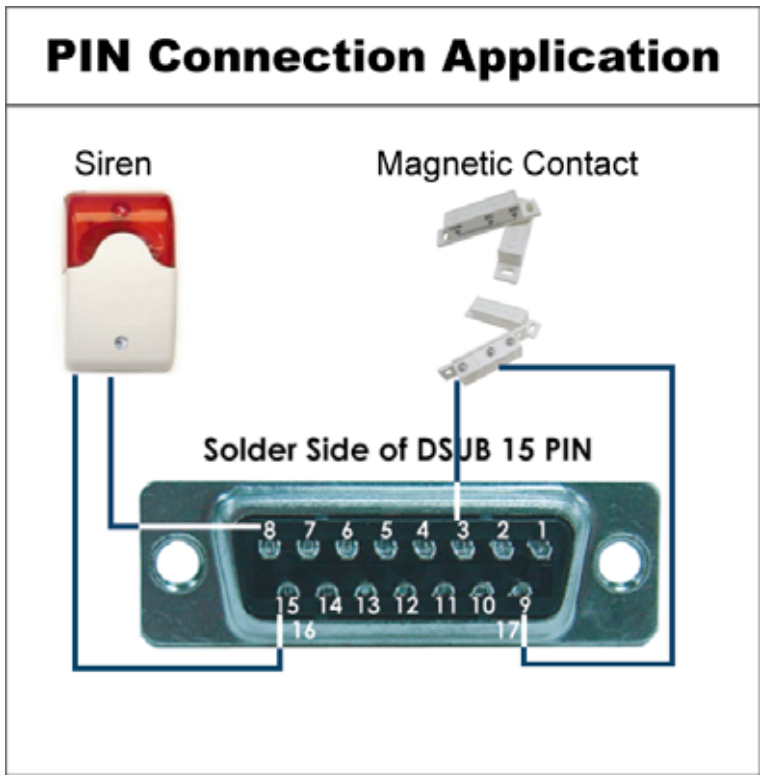
Please refer to the table below for easy troubleshooting. The table describes some typical problems and also their solutions. Please check them before calling your DVR dealer.

Problem	Solution
No power	Check power cord connection.
	Confirm that there is power supplied from the outlet.
DVR is not working when pressing any button	You might be under “Key Lock” mode. Press any key and enter the password to exit this mode.
Timer record is not working	Check if “TIMER RECORD ENABLE” option is set to “YES”.
No live video	Confirm the camera is power supplied.
	Check the setting of the camera lens.
	Check the monitor’s video cable and connection.
	Check the camera’s video cable and connection.
No recorded video	Check if the HDD is installed and connected properly
DVR keeps rebooting	Make sure the power connector and HDD are connected closely, or change another compatible HDD.
HDD detection failed	Replace with another HDD for testing.
	Replace with another HDD cable for testing.
	Make sure HDD “Master”, “Slave” mode is correctly set.
Can’t detect your USB flash drive	Replace with another USB flash drive for testing.
Can’t view the DVR images over the network with IE web browser	Update the JAVA program.
	Update the firmware of the licensed software AP.
Can’t play the recorded data on my DVR	There must be at least 8192 images of recorded data for playback to work properly. If not, your DVR will stop the playback. For example, if the IPS is set to 30, the recording time should be at least 273 seconds (8192 images / 30 IPS) for the playback to work properly.

8.2 Default Value

◎ **DVR Side**			
Item	**Default Value**	**Item**	**Default Value**
ADMIN Password	0000	Detection	OFF
GUEST Password	1111	Detection - LS	07
Camera - BRIG	110	Detection - SS	03
Camera - CONT	128	Detection - TS	02
Camera - SATU	128	Detection - RE	10
Camera - HUE	128	Detection - Alarm	OFF
Camera - COV	NO	Network - IP Address	192.168.1.10
Camera - REC	NO		
◎ **AP Side**			
Item	**Default Value**	**Item**	**Default Value**
User Name	admin	Port	80
Password	admin	IP Address	192.168.1.10

APPENDIX 2 PIN CONFIGURATION



Siren: When the DVR is triggered by alarm or motion, the COM connects with NO and the siren with strobe starts wailing and flashing.

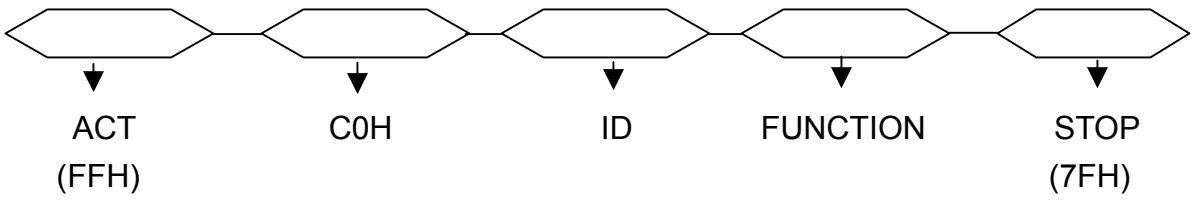
Magnetic Contact: When the magnetic contact is opened, the alarm will be triggered and the recording is on.

PIN	FUNCTION	DESCRIPTION
1	RS232-TX	DVR can be controlled remotely by the keyboard of PC by using RS-232 serial communication signals. Please refer to “APPENDIX 3 RS-232 PROTOCOL” for details.
2	RS232-RX	DVR can be controlled remotely by the keyboard of PC by using RS-232 serial communication signals. Please refer to “APPENDIX 3 RS-232 PROTOCOL” for details.
3 ~ 6	ALARM INPUT	To connect the wire from ALARM INPUT (PIN 3 -- 6) to GND (PIN 9) connector, DVR will start recording and the buzzer will be on. When “MENU -> CAMERA -> ALARM” is set to “Low” : When the alarm input signal is “ Low ”, the unit starts to record and buzzer. When “MENU -> CAMERA -> ALARM” is set to “High” : When the alarm input signal is “ High ”, the unit starts to record and buzzer.
7	EXTERNAL ALARM NC	Under the normal operation, COM connects with NC and disconnects from NO. But when any alarm is triggered, COM disconnects with NC and connects with NO. Attention: The voltage restriction is under AV/DC 30V.
8	EXTERNAL ALARM NO.	Under the normal operation, COM disconnects with NO. But when any alarm is triggered, COM connects with NO. Attention: The voltage restriction is under AV/DC 30V.
9	GND	Signal GND
10	RS485-B	DVR can be controlled remotely by the keyboard of PC by using RS-485 serial communication signals.
11	RS485-A	DVR can be controlled remotely by the keyboard of PC by using RS-485 serial communication signals.
12 ~ 13	PIN OFF	
14	ALARM RESET	Connecting the wire from ALARM RESET (PIN 14) to GND (PIN 9) connector will disable alarms. An external signal to ALARM RESET (PIN 14) can be used to reset both ALARM OUTPUT signal and DVR’s internal buzzer. When any alarm has been triggered, the signal becomes “Low”, and all alarm activities will be stopped. Under the normal operation, the signal remains “High”.
15	EXTERNAL ALARM COM	Under the normal operation, COM disconnects with NO. But when any alarm is triggered, COM connects with NO. Attention: The voltage restriction is under AV/DC 30V.
16 ~ 17	GND	Earth GND

APPENDIX 3 RS-232 PROTOCOL

Use your PC keyboard to simulate your DVR keypad.

Data: REMOTE PROTOCOL use 8 bit data, 1 start bit, 1 stop bit.



FUNCTION	CODE	ASCII	FUNCTION	CODE	ASCII
KEY_MENU	0x4D	M	KEY_DWELL	0x65	e
KEY_ENTER	0x0D	ENTER	KEY_CH1	0x31	1
KEY_PLUS	0x6b	k	KEY_CH2	0x32	2
KEY_MINUS	0x6d	m	KEY_CH3	0x33	3
KEY_UP	0x55	U	KEY_CH4	0x34	4
KEY_DOWN	0x4E	N	KEY_CH5	0x35	5
KEY_LEFT	0x4C	L	KEY_CH6	0x36	6
KEY_RIGHT	0x52	R	KEY_CH7	0x37	7
KEY_POWER	0x57	W	KEY_CH8	0x38	8
KEY_REC	0x72	r	KEY_CH9	0x39	9
KEY_PLAY	0x50	P	KEY_CH10	0x41	A
KEY_SLOW	0x53	S	KEY_CH11	0x42	B
KEY_ZOOM	0x5A	z	KEY_CH12	0x43	C
KEY_KEY LOCK	0x4B	K	KEY_CH13	0x44	D
KEY_AUDIO	0x64	d	KEY_CH14	0x45	E
KEY_SEARCH	0x73	S	KEY_CH15	0x46	F
KEY_PTZ_MODE	0x70	p	KEY_CH16	0x47	G
KEY_PTZ_PRESET	0x71	q	KEY_EJECT_DVD	0x6a	j
KEY_PTZ_ZOOM_IN	0x69	i	KEY_IRIS_NEAR	0x67	g
KEY_PTZ_ZOOM_OUT	0x66	f	KEY_IRIS_FAR	0x68	h
KEY_MODE	0x6f	o	KEY_PTZ_LIGHT	0x6c	l
KEY_4 CUT	0x61	a	KEY_PTZ_WIPER	0x77	w
KEY_9 CUT	0x62	b			
KEY_16 CUT	0x63	c			
KEY_SET_CHANNEL	0x6e	n			

APPENDIX 4 RECORDING TIME TABLE

The recording time varies depending on the following factors:

- Different camera quality
- Different picture composition (such as frequency of the object movement)

Recording Time For Model 1, 2 and 5

RECORD MODE	QUALITY	IPS	RECORD TIME FOR 500GB (HOUR)	RECORD DAY
FRAME	BEST	30	436.9	18.2
		15	767.6	32
		7	1398	58.2
		3	2258.6	94.1
	HIGH	30	552.8	23
		15	971.3	40.5
		7	1768.9	73.7
		3	2857.9	119.1
	NORMAL	30	726.2	30.3
		15	1276	53.2
		7	2323.9	96.8
		3	3754.5	156.4
	BASIC	30	1173.7	48.9
		15	2062.2	85.9
		7	3755.9	156.5
		3	6068.1	252.8
CIF	BEST	120	520.8	21.7
		60	915.1	38.1
		30	1666.7	69.4
		15	2692.7	112.2
	HIGH	120	734.2	30.6
		60	1290	53.8
		30	2349.5	97.9
		15	3795.9	158.2
	NORMAL	120	966.2	40.3
		60	1697.6	70.7
		30	3091.8	128.8
		15	4995.2	208.1
	BASIC	120	1338.7	55.8
		60	2352.1	98
		30	4283.8	178.5
		15	6921	288.4

Recording Time For Model 3 and 4

RECORD MODE	QUALITY	IPS	RECORD TIME FOR 500GB (HOUR)	RECORD DAY
FRAME	BEST	30	127.78	5.3
		15	236.11	9.8
		7	511.11	21.3
		3	980.65	40.9
	HIGH	30	159.72	6.7
		15	305.55	12.7
		7	633.89	26.4
		3	1209.72	50.4
	NORMAL	30	179.17	7.5
		15	352.78	14.7
		7	626.11	28.6
		3	1263.88	52.7
	BASIC	30	222.22	9.3
		15	405.56	16.9
		7	927.78	38.7
		3	1637.5	68.2
CIF	BEST	120	763.89	31.8
		60	1416.67	59
		30	2156.94	89.9
		15	4134.72	172.3
	HIGH	120	965.28	40.2
		60	1655.55	69
		30	3398.61	141.6
		15	4833.31	201.4
	NORMAL	120	1120.83	46.7
		60	2166.38	90.3
		30	4105.56	171.1
		15	5154.17	214.8
	BASIC	120	1563.89	65.2
		60	2494.44	103.9
		30	4472.22	186.3
		15	6681.94	278.4

APPENDIX 5 COMPATIBLE USB FLASH DRIVE BRAND

Please upgrade the firmware of the DVR to the latest version to ensure the accuracy of the following table. If the USB flash drive is not supported by the DVR, the "USB ERROR" message will be shown on the screen.

Note: Please use your PC to format the USB flash drive as "FAT 32".

Compatible USB Flash Drives

MANUFACTURER	MODEL	CAPACITY
Transcend	JetFlash 110	256MB
		512MB
Kingston	DataTraveler DTI KUSBDTI/256FE	256MB
		512MB
PQI	Cool Drive (U339)	256MB
		512MB
APACER	HANDY STENO HF202	256MB
		512MB
SANDISK	Cruzer Micro	128MB
		256MB
		512MB

APPENDIX 6 COMPATIBLE HDD BRAND

Please upgrade the firmware of the DVR to the latest version to ensure the accuracy of the following table.

Compatible HDD BRAND

MANUFACTURER	MODEL	CAPACITY	ROTATION
HITACHI	Deskstar 7K250, HDS722516VLAT20	160GB	7200 rpm
	HDS722516VLAT80	160GB	7200 rpm
	HDS722516DLAT80	160GB	7200 rpm
	Deskstar 7K250, HDS722525VLAT80	250GB	7200 rpm
	Deskstar 511DHT0021	500GB	7200 rpm
Maxtor	DiamondMax Plus 9, Model#6Y160L0	160GB	7200 rpm
	DiamondMax 10 6L160R0	160GB	7200 rpm
	DiamondMax 10 6L200R0	200GB	7200 rpm
	DiamondMax 10 6L200PO	200GB	7200 rpm
	MaxLine Plus Ⅱ, Model#7Y250P0	250GB	7200 rpm
	DiamondMax 10 6L250R0-3	250GB	7200 rpm
	DiamondMax 10 HDMA6L300RO-3	300GB	7200 rpm
Seagate	Barracuda 7200.7 Plus, ST3160023A	160GB	7200 rpm
	Barracuda 7200.8 ST3200826A	200GB	7200 rpm
	Barracuda 7200.8 ST3250826A	250GB	7200 rpm
	Barracuda 7200.8 ST3300831A/P	300GB	7200 rpm
	Barracuda 7200.8 ST3400832A/P	400GB	7200 rpm
	7200.9 ST3200827A/P	200GB	7200 rpm
	7200.10 ST3250620A/P	250GB	7200 rpm
	7200.10 ST3320620A/P	320GB	7200 rpm
Western Digital	Caviar SE WD1600JB	160GB	7200 rpm
	Caviar WD2000BB-00DWA0	200GB	7200 rpm
	Caviar SE WD2500JB	250GB	7200 rpm
	Cavir RE WD2500SB-01KBC0	250GB	7200 rpm